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AGRICULTURE

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24 August 1982

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## MAJOR CROP PROGRESS AND WEATHER REPORTING

### PROGRESS OF SPRING PLANTING WORK IN KAZAKHSTAN

Alma-Ata KAZAKHSTANSKAYA PRAVDA in Russian 24 Apr 82 p 1

[Excerpts] The work front on the fields of the republic is expanding each day. This year, because of weather conditions, a number of rayons have begun somewhat later than usual. Therefore, in order not to miss the optimal time periods, the sovkhozes and kolkhozes are taking all measures for highly productive operation of each set of equipment and they are striving to take advantage of each hour of good weather here. On many farms the work is being done on two shifts and 24 hours a day. The agricultural workers are doing everything possible to lay a good basis for this year's crop.

On the sovkhozes and kolkhozes of the republic spring planting has already been completed on an area of 1.5 million hectares, including grain and pulse crops on an area of 997,000 hectares. With the exception of the mountainous rayons, planting of spring spike crops has been completed by the farms of Alma-Atinskaya, Dzhambul'skaya, Kzyl-Ordinskaya and Chirchik'skaya oblasts. Farmers of Taldy-Kurgan'skaya Oblast have fulfilled the plan for planting wheat and barley by more than three-fourths.

Implementing the decree of the CPSU Central Committee and the USSR Council of Ministers, "On Measures for Increasing the Production and Procurement of Seeds of Sunflowers, Soy, Rape and Other Oil-Bearing Crops and Improving Their Quality," the republic is expanding the areas planted in them and taking measures to improve the agrotechnology of their cultivation.

Spring top dressing of the planted areas is now being conducted on the winter fields. This work has been done on an area of 1.11 million hectares or two-thirds of the planted areas. In Alma-Atinskaya Oblast 87 percent of the winter crops have been top dressed, Chirchik'skaya--91 percent, and Dzhambul'skaya--77 percent. It must be admitted that on a number of farms the application of mineral fertilizers is proceeding at slow rates. In Vostochno-Kazakhstanskaya, Semipalatinskaya and Ural'skaya oblasts less than one-fourth of the winter fields have been fertilized so far, and Aktyubinskaya Oblast has not yet begun this work. Kazzel'khozkhimiya agencies are not rendering adequate assistance to the sovkhozes and kolkhozes. Agricultural agencies must take control over the work on the winter fields and take all necessary measures to complete it on all farms in the immediate future.

Seeds of grain crops have been promptly prepared for this year's harvest and 85 percent of them meet the requirements of the first and second classes of the planting standard. Only high-class seeds will be planted on 721 farms in the republic. Now it is important for all seeds with a moisture content of no more than 16 percent to be treated promptly and well. This work is already being done on many farms. As of 20 April 380,000 tons of seeds had been treated. But it should be noted that in Vostochno-Kazakhstanskaya, Karagandinskaya and Tselinogradskaya oblasts this work is being done at slow rates and many farms of Pavlodarskaya and Turgayskaya oblasts have not yet begun it.

The moisture in the soil on the fields is a task of primary importance for farmers of the republic's northern zone. Last autumn during the period when the fields were being plowed there was no precipitation in a number of rayons and the soil entered the winter with small supplies of moisture. Therefore maximum retention and efficient utilization of it are of decisive significance for the future crop.

Conducting field work promptly depends entirely on high-quality preparation and highly productive operation of technical equipment. But there are serious shortcomings in this matter. As of 15 April, 20,400 tractors, including more than 6,000 K-700 and K-701 tractors, had not been prepared for operation in the republic. Almost every fourth Kirovets was unready in Vostochno-Kazakhstanskaya, Kzyl-Ordinskaya, Ural'skaya and Chimbkentskaya oblasts. Many seeders and cultivators were in disrepair in Dzhezkazganskaya and Kzyl-Ordinskaya, Turgayskaya and Tselinogradskaya oblasts. Farmers of the republic are faced with a responsible task: to conduct the entire volume of work of the spring agrotechnical complex in reduced time periods and with high quality, to provide good care for the planted areas, to raise large yields of all crops, and to mark the 60th anniversary of the founding of the USSR with new successes in labor.

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CSO: 1824/341

## MAJOR CROP PROGRESS AND WEATHER REPORTING

### PLANTING BEGUN ON VIRGIN LAND OF KAZAKHSTAN

Moscow IZVESTIYA in Russian 16 May 82 p 1

[Article by G. Shipit'ko: "Kazakhstan: The Virgin Land Has Begun to be Planted"]

[Excerpts] Mass planting of grain crops, which are to occupy 17 million hectares, is underway on the virgin expanses. And today the farmers are doing everything possible to gladden the country with new achievements in the year of the 60th anniversary of the founding of the USSR and the 250th anniversary of Kazakhstan's voluntary unification with Russia. Tens of thousands of sets of planting equipment and tractors have gone out onto the fields. On certain days the work front has now advanced up to 200 kilometers northward in 24 hours.

The desire for sound management which is fully in keeping with science and natural conditions is a typical phenomenon of the majority of kolkhozes and sovkhoses of Kazakhstan. This is precisely what has made it possible for the republic to sell the state an average of a billion poods of grain a year recently. And the largest proportion of the Kazakhstan billion has come from virgin land. The forces of the land and its potential capabilities are fully in evidence here. One becomes convinced of this by looking at the results of the activity of the virgin farms in recent years.

The Shuyskiy Sovkhoz in Tselinogradskaya Oblast won a solid good reputation long ago. Planting work is proceeding smoothly this year too. Even before planting began a cartogram was drawn up for each field, taking into account the quantity of moisture, the nutritive substances in the soil and the salinity. In order to reduce evaporation of moisture, preplanting cultivation is carried out at night while planting is done during the day. A good deal is being done here to expand the areas planted in the most productive strain of wheat. This year almost half of the area will be planted in such strains as Omskaya-9 and Tselinaya-21.

At a conference of oblast agricultural workers held a couple of days ago it was decided to plant new strains of wheat on one-third of the spring fields. This is being done in keeping with recommendations of scientists of the All-Union Scientific Research Institute of Agriculture (VNIIZKh). They also recommended changing the ratio between medium ripening and medium late ripening strains of wheat, which will make it possible to increase the economic effect.

This year the oblast grain growers must harvest 3.4 million tons of grain. The commitments are high and their realization depends fully on each grain grower.

Field work is in full swing in the largest grain bin of the virgin land--Kustanayskaya Oblast. They have repaired technical equipment in an organized way here this year, and prepared seeds of only the first and second classes of the planting standard. Today there are about 800 mechanized complexes on the fields, and they will have to plant 4.3 million hectares. The rates of work are high.

The need to obtain full-value grain was also dictated by the fact that this year the structure of the areas planted in spring crops has changed considerably--more of the area has been devoted to feed crops, and the amount of fallow has been increased considerably. Not to lower the level of grain sales is not a simple task, but farmers of the oblast have every opportunity of carrying it out. And the most important thing the oblast has today is the ability to achieve large stable yields.

Last year many farms obtained an average of up to 15 quintals per hectare. And now much is being done to make sure that under this five-year plan the 20-quintal goal will be the norm.

The days are now very busy for grain growers of Kokchetavskaya Oblast.

Measures are now being taken to rectify the situation. It would seem that this will have a significant effect on the successful fulfillment of socialist commitments. And they are high--to produce no less than 3.5 million tons of grain.

The front of field work is also expanding for the initiators of the republic competition for preparing for and conducting spring work in an exemplary way--the farmers of Severo-Kazakhstanskaya.

"The farmers have committed themselves," says the secretary of the party obkom, V. Khmara, "to producing no less than 2.8 million tons of grain and harvesting no less than 16 quintals of grain from each hectare. The goal, quite frankly, is high. Half of the wheat sold to the state will be of strong and durum strains. Farmers of the oblast have already done a good deal to make sure that what has been earmarked becomes a reality. The fallow was plowed at optimal times and more than 5.5 million tons of organic fertilizers were brought onto the fields. Especially important in the complex of work is the preparation of the planting material. We are planting wheat with seeds of the first and second classes. All this gives us justification to be confident that the oblast's harvest will be good this year."

Planting in the virgin land is entering a decisive stage. The grain growers are firm in their resolve to sell the homeland as much grain as possible.

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## MAJOR CROP PROGRESS AND WEATHER REPORTING

### DON FARMERS ENGAGE IN FIELD WORK

Moscow SEL'SKAYA ZHIZN' in Russian 14 Apr 82 p 1

[Article by A. Pal'chenko, chief agronomist of the agricultural production administration of the Rostovskaya Oblast Ispolkom, and Yu. Maksimenko (Rostovskaya Oblast): "Day and Night"]

[Excerpts] Farmers of Rostovskaya Oblast have allotted 80-100 hours for planting early spring grain crops. More than 2,000 sets of planting equipment have been brought onto the fields. The situation requires that the field work be done 24 hours a day, at rapid rates and with good quality.

Because of the late arrival of spring the time periods for the beginning of field work in the southern regions of the Don area were moved back by almost a half month. There is very little time for planting early grain crops. Moreover, the volume of work has increased greatly--it will be necessary to restore some of the damaged winter crops without delay.

How does one overcome the difficulties and take care of the planting more rapidly. The answer is to be found in the valuable practice of the farms of Sal'skiy, Zernogradskiy, Yegorlykskiy and Tselinskiy rayons. Having retained the moisture on the fall fallow in 1.5-2 days, here they are rapidly carrying preplanting cultivation, and restoring the winter crops in the areas planted in peas, barley, grass-legume mixtures and grasses. Managers and specialists of the kolkhozes and sovkhozes and agricultural production associations of the rayispolkoms have relied mainly on the highly productive and high-quality operation of each set of equipment, the observance of technological operations, efficient organization and close interaction of all production units in planting.

To learn to raise good crops in the Don area both when there is a shortage and when there is an abundance of moisture is a complex task, but not an impossible one. This spring is an important test on the path to carrying it out. It requires not a routine, but a creative approach to raising each crop. Technological operations must not be simplified and the correct agrotechnology must be strictly observed on each field. Such are the commandments of the agronomist.

Sal'skiy farmers have earmarked high goals for the current five-year plan--to produce no less than 500,000 tons of grain annually and to regularly harvest 35 quintals of high-quality grain from each hectare. Deep-seated reserves for increasing

the productivity of the arable land are being put to work. They are to be found in the systems of farming of the rayon and of each farm individually. Crop rotations are being more strictly reserved. In the structure of the planted areas they are selecting highly intensive strains of winter wheat, pulse crops, forage crops and other crops that are appropriate for the conditions of the Sal'skiy Steppe.

"Our great reserve," says the head agronomist of the production association of the Sal'skiy rayispolkom, honored agronomist of the RSFSR, A. Mandrykin, "is to increase the productivity not only of winter crops, but also of spring crops: barley, peas, millet, corn, sorghum and sunflowers. To do this we have developed and are implementing a system of agrotechnical and organizational measures. We topdressed the winter crops in the autumn and now, in addition to early spring topdressing, they are also receiving root feeding. All spring spike crops are being planted with the simultaneous application of mineral fertilizers in the rows. For the first time we have allotted fertilizers for root feeding of barley. This agricultural device is well known on our farms and it produces an additional grain yield of from 3-5 quintals per hectare. We are expanding the area of industrial plantings of corn for grain and sunflowers. We are increasing the application of manure and concentrated liquid mineral fertilizers on the fields. In a word, the agrotechnical devices and technology are directed to ensuring that each crop in the crop rotation produces a full return."

The rayon planting staff headed by the first secretary of the Sal'sk party gorkom, V. Peschanokopskiy, is carefully analyzing the course of spring work and is effectively "expanding" the bottlenecks and coordinating the efforts of enterprises and organizations that serve the grain growers.

It is gratifying that it has become compulsory for the farms to take such measures as loosening the soil of the tractor tracks with heavy harrows, attaching covering devices and rotating rakes to the seeding aggregates, levelling the planted fields by subsequently harrowing and packing them, and using other measures for improving the quality of work on the fields.

Sal'skiy Rayon completed the restoration of the winter crop in 58 hours, planted the early spike and pulse crops at rapid rates and is now preparing the soil for the row crops. Early spring crops were planted in shorter periods of time on the farms of Peschanokopskiy, Tselinskiy, Yegorlykskiy, Kagal'nitskiy and Azovski rayons. Field work is proceeding more rapidly in the central and southwestern zones of the oblast. Having completed the harrowing of the fall and spring fallow, the farms are cultivating the soil and have begun mass planting.

In keeping with the initial plan, 2,881,000 hectares have been allotted for spring crops in the oblast, and more than 1 million of them will be planted in early spike and pulse crops. But spring has made its own adjustments. Taking into account the restored parts of the damaged winter crops, the areas planted in spring crops were increased. The situation is such that the agronomical service in the oblast and the rayons must act more energetically and efficiently and utilize all reserves and possibilities for carrying out the planting in reduced periods of time and with high quality.

The late spring does not allow a single hour of delay. The Don farmers are counteracting the difficulties with their ability, mastery and organization.

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CSO: 1824/312



## MAJOR CROP PROGRESS AND WEATHER REPORTING

### KIRGHIZ SSR SUGAR BEET PROBLEMS REVIEWED

Frunze SOVETSKAYA KIRGIZIYA in Russian 20 Jun 82 p 1

/Article: "Proper Tending of the Beet Crop"; see also JPRS 81187/1335, 1 Jul 82 for information on sugar beet pest forecast/

/Text/ The industrial sugar beet plantations were not spared the hot spring and scarce water conditions. Those plantations which suffered extensive damage had to be resown in other crops. No less than 600,000 tons of roots must be harvested from 17,000 hectares. And this means that the beet growers must employ an entire complex of agrotechnical measures in order to raise the cropping power and also for the purpose of carrying out the food program as approved during the May (1982) Plenum of the CC CPSU.

The beet growers at the Druzhba Kolkhoz in Sokulukskiy Rayon compare their work in the field and their labor successes against those goals set forth in the food program. In accordance with the plan, this year they must obtain an average of 400 quintals of industrial sugar beets per hectare, while the kolkhoz members have resolved to compete for a 500 quintal yield. Over a period of 15 days the kolkhoz members thinned out the seedlings, applied two top dressings during the best periods and they watered and cultivated their plantations. The soil was maintained in a loose and damp condition. The tending of the non-transplanted sugar beets was organized in an exemplary manner. The brigades headed by Aman Raimkulov, Nikolay Bogdanov and Lidiya Kolosova are leading the competition.

The overwhelming majority of the industrial sugar beet plantings are well developed at the Karsnyy Oktyabr' and imeni Engel's Kolkhozes in Moscow Rayon.

Other farms can also follow their example in tending their plantations and they will thus create the conditions required for increasing their yields. We cannot rest satisfied with the fact that three fourths of the sowings are in good or satisfactory condition. For such average indicators, not many of the beets are well developed -- in all only 28 percent. This means that one half of them have not yet reached the state where one can count on obtaining a rich yield. To this one must also add that 26 percent of the sowings have fallen behind in their development.

Nor did they fall behind in their development owing to the fact that they were suppressed by the intense heat. One tenth of the areas were severely overcrowded,



since the work of thinning out the plants had not yet been completed and a weed control check had not been carried out on one half of the plantings. Moreover, almost 1,300 hectares had become severely overgrown with weeds.

What caused this lag in the carrying out of work on the beet plantations? Could it have been a shortage of cultivation equipment? Or could it have been brought about by a shortage of working hands? Neither the one nor the other. Following a reduction in the beet plantings, considerably more tractors, sprinkling machines and cultivators were available for each hectare. Naturally, the workloads of the machine operators and beet growers decreased. Thus the kolkhozes and sovkhozes are able to carry out the work on their plantations during the best periods while observing the requirements of the progressive technology. But it is apparent that their leaders are not devoting proper attention to the factory beets, nor are they undertaking the measures required for carrying out timely cultivations, waterings and top dressings.

There can be no doubt but that the sharp deficit of water for irrigation purposes created considerable difficulties with regard to watering the plantings not only of industrial sugar beets but other crops as well. Nevertheless, the kolkhozes and sovkhozes did succeed in saturating the plantations with water on two occasions and the workers in Issyk-Atinskiy Rayon -- on three occasions. But who of these beet growers is aware that the effectiveness is dependent to a great degree upon the post-watering loosening of the inter-row spacings, which is especially important under the present weather conditions? Nevertheless, this is not being taken into account in all of the brigades or teams. Allow me to cite one fact. The first watering was conducted on 16,300 hectares and cultivation work was carried out on only 15,000 hectares. This difference was even greater following the second watering. Top dressings are not being applied to the beet plantings in a sufficiently energetic manner. The first one has still not been completed and the second has been carried out on only one fourth of the plantations.

An analysis of the situation reveals that a majority of the farms in Chuyskiy and Panfilovskiy Rayons are lagging seriously behind in carrying out the agrotechnical measures associated with tending the crops. They are very late in watering the crops, loosening the inter-row spacings and applying top dressings and the quality of the work often leaves a great deal to be desired. Weeds have still not been removed from a portion of the plantings. Is it any wonder then that one half of the plantations in these rayons is in poor condition?

The facts indicate that the party, soviet and agricultural organs are not improving the sense of responsibility for the status of the factory sugar beet plantings, nor are they properly evaluating the attitudes being taken by the leaders and specialists with regard to the timely carrying out of an entire complex of agrotechnical measures. Let us take for example the Kegety Sovkhoz in Chuyskiy Rayon. Here the situation has reached a point where 60 percent of the plantations are overgrown with weeds. Of 178 hectares, a second watering has been given to only 50 and these have not been cultivated. The leaders of the farm do not believe that it is necessary to carry out inter-row tilling. It bears mentioning that the leaders in Panfilovskiy Rayon are also not attaching the proper value to post-watering loosening of the soil. And this results in rapid evaporation of the moisture.

The crop is presently growing in size and how big it will get is dependent upon the manner in which the plantations are tended. In order for the roots to increase in weight and sugar content, the lag that has developed in the carrying out of cultivations, applying top dressings and watering the plantings must be eliminated. Special importance is being attached to exercising control over the plantation work being carried out on farms where the beets are insufficiently developed, to carrying out mass-political work and to launching an effective competition under the slogan: "We will obtain a good harvest and we will make a worthy contribution towards the successful fulfillment of the food program."

7026

CSO: 1824/430

## MAJOR CROP PROGRESS AND WEATHER REPORTING

### TENDING OF SUGAR BEET CROP IN UKRAINE REVIEWED

Kiev PRAVDA UKRAINY in Russian 30 May 82 p 3

/Article by L. Rozhinskiy, chief of the Main Administration for Technical Crops of the Ministry of Agriculture for the Ukrainian SSR and honored agronomist of the republic: "An Urgent Task of the Beet Growers"/

/Text/ Last year the beet harvest in the Ukraine was lower than that planned. Some rayon, oblast and farm leaders blamed this on unfavorable weather conditions. Truly, the weather did not indulge the farmers and yet the chief reason was to be found elsewhere. During the past few years, on many farm and in many rayons, less attention has been given to our chief technical crop. Last year many beet fields were not assigned to teams. In the absence of responsibility for these fields, crude violations of the agrotechnical requirements occurred.

Everything must be done this year to restore the fame of the Ukrainian beet growers and to enable them to carry out their obligation -- to obtain 321 quintals of roots from each of 1.75 million hectares and to sell 51,5 million tons of this valuable raw material to the state.

The sowing of sugar beets throughout the republic was practically completed by 10 May. This crop is being cultivated using the industrial technology on 522,000 hectares. It bears mentioning that the sowing was carried out on 686,000 hectares (39 percent of the sowing area) using reduced norms and on 160,000 hectares -- to the ultimate density of the stand.

At the present time, all attention must be focused on ensuring that the sowings are properly tended. Pre-seedling loosening has been carried out on the entire sowing area, harrowing of the seedlings is being conducted and many teams have already commenced loosening the inter-row spacings. As of 24 May, seedlings had appeared on an area of more than 16 million hectares. On 900,000 hectares they are considered to be in fine condition, on 600,000 hectares -- satisfactory condition and on the remaining area they are partially thinned out and weak.

The importance of a timely and correct formation of a planting density, for obtaining a high beet yield, is generally well known. Indeed, each day's delay in the formation of this density serves to lower the yield. This is why it is necessary on all areas, with the exception of those where the sowing was carried out using highly germinative seed for the final density, to thin out the seedlings lengthwise along the rows. Use should be made of all available mechanisms for this purpose.

In Vinnitskaya Oblast the plant density has already been formed on more than 100,000 hectares and the machine operators are loosening the inter-row spacings and applying a top dressing. But a high value is not being assigned to time in all areas. In Kirovogradskaya, Nikolayevskaya and Odesskaya Oblasts the formation of the density has already been dragging out for more than 10 days and the work has been completed on only one half of the plantations. The reason for this -- many rayons are extremely unwilling to use their row thinning units or they utilize them in a poor manner.

Great importance is being attached to achieving an optimum and uniform plant density (this enables the plants to utilize better and more completely the sun's rays, the supplies of moisture and the nutrients in the soil). Moreover, this density must be maintained right up until harvest time.

All of the beet sowings should be given a top dressing during the growing season, with the mineral fertilizer being applied in dosages and the nutrients in ratios recommended by science. It should be remembered that top dressings are most effective when applied early.

Beets are a moisture-loving crop and thus the tending of the crops must be directed towards retaining and making maximum use of the available moisture, keeping the plantings free of weeds and ensuring that the soil of the plantations is maintained in a loose condition.

An equally important task is that of protecting the crop against pests and diseases. This requires that the farms be supplied with the required chemicals and that they be able to employ them in a skilful manner. Special attention should be given to those plantings where low seed norms were employed and also to those areas where unhealthy seedlings appeared. Observation posts should be created on each beet growing farm for the purpose of detecting in a timely manner the appearance of pests and diseases and undertaking corrective measures.

The initiative displayed by the Yampool'skiy Rayon beet growers and sugar producers (Vinnitskaya Oblast) is finding more and more support. More than 5,000 contracts have already been drawn up for labor collaboration in achieving high sugar yields per hectare. Many examples could be cited of close interaction between field workers and workers at sugar plants. Unfortunately, we are still encountering instances of such contracts being only formal in nature.

It is difficult to exaggerate the importance of introducing scientific-technical progress into beet production. However, many problems are being solved in a slow manner. The rural areas have for a long period of time been awaiting the arrival of seed for varieties and hybrids suitable for mechanized cultivation. A requirement also exists for more effective domestic herbicides, chemical agents for protecting plants and a new beet sowing machine for the sowing of low seed norms and for a given density.

The decisions handed down during the May Plenum of the CC CPSU, which adopted the food program, are inspiring the rural workers to achieve new heights. There can be no doubt but that this year the Ukrainian beet growers will make a worthy contribution towards the carrying out of this program.

7026

CSO: 1824/430

## MAJOR CROP PROGRESS AND WEATHER REPORTING

### BRIEFS

PLANTING OF EARLY POTATOES--Early potatoes were planted on an area of 5,300 hectares in the republic, including on 3,100 hectares in Alma-Atinskaya Oblast. /Text/ /Alma-Ata KAZAKHSTANSKAYA PRAVDA in Russian 24 Apr 82 p 1/ 11,439

SPRING CAMPAIGN IN KAZAKHSTAN--The spring harvesting campaign on farms in Severo-Kazakhstanskaya Oblast has begun at its usual labor pace. The crucial season, for which farmers have been preparing themselves since last fall, has arrived. Field growers on the Novokamenskiy Sovkhoz are the first in Bishkul'skiy Rayon and in the oblast to begin potato planting. /By N. Yegorov, contributor to the Bishkul'skiy Rayon newspaper MAYAK, Severo-Kazakhstanskaya Oblast/ /Text/ /Alma-Ata KAZAKHSTANSKAYA PRAVDA in Russian 12 May 82 p 1/ 11,439

POTATO, VEGETABLE PRODUCTION--A mass planting of potatoes and vegetables is taking place on the republic's sovkhozes and kolkhozes. The areas under these vegetable crops are now being expanded considerably. Potatoes will occupy more than 91,000 and vegetables, more than 46,000 hectares. The task of definitively removing the potato and vegetable problem from the agenda in the very near future and of attaining a full supply of these products for the population without bringing them from the outside was set for rural workers. All the conditions for this exist in the republic. First of all, it is necessary to increase the yield of vegetable crops, to expand their assortment and to ensure a full preservation of grown products. This year the republic must produce no less than 520,000 tons of potatoes and 770,000 tons of vegetables. Preparing to welcome the 60th anniversary of the formation of the USSR in an appropriate manner, experts in vegetable plantations have expanded the competition for an increase in potato and vegetable production. /Text/ /Alma-Ata KAZAKHSTANSKAYA PRAVDA in Russian 12 May 82 p 1/ 11,439

POTATO HARVESTING IN UZBEKISTAN--Tashkent, 15 Jun--Farms in Uzbekistan's capital oblast are gathering the first potato harvest. Early varieties occupy more than 10,000 hectares here. On the vacated areas arable land is being rapidly prepared and late potato varieties are being planted. A number of farms are using the tubers of the first harvest for this. /By A. Izilevskiy/ /Text/ /Moscow SEL'SKAYA ZHIZN' in Russian 16 Jun 82 p 1/ 11,439

POTATO HARVESTING IN KIRGHIZIA--The harvesting of early potatoes has begun on the high mountain plantations in the south of Kirghizia. All the services of the Osh Fruit and Vegetable Agroindustrial Association are ready to accept the harvest. /Text/ /Moscow EKONOMICHESKAYA GAZETA in Russian No 26, Jun 82 p 3/ 11,439

NEW POTATO VARIETIES--Minsk, 13 May--The new varieties of potatoes, in the mass planting of which farms in Belorussia are engaged, will make it possible to increase the output of the "second bread." The varieties of this crop developed by breeders at the Belorussian Scientific Research Institute of Potato, Fruit and Vegetable Growing enable farmers in the republic and in many other regions in the country to greatly increase the gross output and to improve the quality of potatoes. The Verba variety developed by the republic's breeders, which has been regionalized as of this year, is noted for an unprecedentedly high content of starch, that is, 23 to 29 percent--almost twice as much as in ordinary tubers. Another medium-ripening variety--Zubrenok--also has a high productive strength and other economically valuable properties. Large areas have been allocated for its planting. During state tests its yield totaled 676 quintals of tubers per hectare--254 quintals more than produced by the popular highly productive Temp. The new Prigozhiy-2 variety is designed for private plots, on which one-half of the gross output of tubers is grown. It is resistant to diseases especially characteristic during a continuous cultivation of potatoes on the same plots for many years. The new variety is fast ripening and produces up to 500 quintals of tubers per hectare. /Text/ /Moscow SEL'SKAYA ZHIZN' in Russian 14 May 82 p 1/ 11,439

MICROCLIMATE FOR POTATOES--Riga--Farmers in Latvia have learned how to harden the delicate sprouts of seed potatoes in order not to damage them during mechanical planting. The specialists of the Latvian Scientific Research Institute of Mechanization and Electrification of Agriculture helped them in this. They proposed that early potatoes be stored in polyethylene bags, where a special microclimate contributing to the formation of short and strong sprouts is formed. Tubers are now preserved better. /Text/ /Moscow GUDOK in Russian 24 Apr 82 p 1/ 11,439

POTATO HILLING IN LATVIA--Riga--Latvian farmers have completed the first hilling of potatoes. Before the beginning of blooming potato growers plan to carry out another four or five interrow cultivations. /Text/ /Moscow TRUD in Russian 11 Jun 82 p 1/ 11,439

IMPROVEMENT IN POTATO VARIETIES--Tallinn, 13 May--The republic's farms are planting potatoes everywhere. Machine operators on the Sovkhoz imeni Lenin in Tartuskiy Rayon are carrying out this work in a high quality manner. A total of 430 hectares have been allocated for potatoes here. About 400 hectares have been allocated for the "second bread" on the Kuusalu Kolkhoz in Khar'yuskiy Rayon. In addition to the traditional Sulev varieties, on this kolkhoz the seeds of six new varieties have been improved by the clone method and the reproduction of seeds obtained by the apical meristem method has begun. /By S. Kuznetsov/ /Text/ /Moscow SEL'SKAYA ZHIZN' in Russian 14 May 82 p 1/ 11,439

POTATO GROWING BRIGADES--Moscow Oblast--Spring in the localities near Moscow was obstinate. "Dmitrovskiy Rayon is one of the major producers of potatoes in the localities near Moscow," V. Novoselov, first secretary of the city party committee, said. "The composition of detachments and links was approved at a meeting of the bureau of the city committee in winter. Ten cost accounting brigades were established. They will also engage in the cultivation of potatoes. The collectives were staffed with the best machine operators and provided with the necessary equipment." The front of field operations is ever wider. Tubers are to be planted in drills everywhere in Dmitrovskiy and other rayons near Moscow. This will make it



possible to carry out the so-called "blind" cultivation before the appearance of sprouts and to destroy weeds. The unstable weather forces machine operators to constantly change their tactics and to perform operations selectively. For example, the Kolkhoz imeni Vladimir Il'ich in Leninskiy Rayon, the Novyy Put' Kolkhoz in Podol'skiy Rayon and the Bol'shevik Sovkhoz in Serpukhovskiy Rayon carefully follow the approach to the areas where potatoes are to be placed. As soon as a certain field dries up, units are moved there. The sowing campaign is proceeding in an organized way in many of the oblast's rayons. Equipment is rarely idle. Seeds and fertilizers are delivered to the field regularly. However, on some farms in Shaturskiy, Naro-Fominskiy and Chekhovskiy Rayons there are malfunctions in the sowing conveyor. Farmers in the localities near Moscow intend to gather as much output as possible per hectare. These days they are trying to lay down a good foundation for the future harvest. /By Yu. Shabanov/ /Text/ /Moscow PRAVDA in Russian 27 Apr 82 p 1/ 11,439

POTATO PLANTING IN UKRAINE--A mass planting of potatoes has spread in the Ukraine. Farmers have completed work on the first 100,000 hectares. /Text/ /Moscow EKONOMICHESKAYA GAZETA in Russian No 18, Apr 82 p 3/ 11,439

PLANTING OF VERNALIZED POTATOES--The planting of potatoes in the Bryansk area will be completed in a few days. In the oblast the "second bread" now occupies almost 100,000 hectares, which is 85 percent of the planting plan. More than one-fourth of the farms have already completed the work on potato fields. Good sprouts have already appeared on early areas. This is not surprising. Vernalized potatoes have been planted in preliminarily formed drills on all fields. The so-called blind and interrow cultivation of fields has begun. /By I. Pyrkh/ /Excerpts/ /Moscow SOVETSKAYA ROSSIYA in Russian 23 May 82 p 1/ 11,439

CARE OF POTATO CROPS--Bryansk, 22 Jun--The oblast's farmers are waging a stepped-up campaign for a high potato harvest. The care of crops has spread widely on the Krasnyy Oktyabr' Sovkhoz, the Baklan' Sovkhoz, the Pervomayskiy Sovkhoz and other farms. /Text/ /Moscow SEL'SKAYA ZHIZN' in Russian 23 Jun 82 p 1/ 11,439

DRILL POTATO PLANTING METHOD--Sumy, 10 May--The oblast's farmers are widely using the drill method of potato planting. During this cool spring abundant in precipitation it is valuable, because it enables land to warm up more rapidly and makes it possible to carry out preemergence interrow hoeing. The fact that the "second bread" is now placed mainly in Poles'ye is an important factor aimed at an increase in the harvest of tubers. Here soil better meets the needs of potatoes, there is more rainfall and the air temperature is not as high as in the south. In accordance with the technological scheme it was decided to apply organic fertilizers to all potato plantations. Mechanized links in Krolevetskiy and Shostkinskiy Rayons, where every hectare of plantations receives 20 to 30 tons of high-quality humus during the spring replotting of fields, actively engage in this work. Glukhovskiy Rayon is also close to this indicator. /By N. Demikhovskiy/ /Moscow SEL'SKAYA ZHIZN' in Russian 11 May 82 p 1/ 11,439

MECHANIZED POTATO PLANTING LINKS--Lutsk--Farmers in Volynskaya Oblast have completed the planting of potatoes. The establishment of mechanized links with the job-contract-plus-bonus wage system helped to handle this work much more rapidly

than last year. Potato growers were the first to use the storage of tubers in preliminarily formed drills. Preemergence cultivation of interrow spacings has already been carried out on one-half of the areas. [Text] [Moscow GUDOK in Russian 9 May 82 p 1] 11,439

VIRGIN LAND PLANTING--Alma-Ata--Many farms have now begun planting wheat in the main grain bin of Kazakhstan--the northern oblasts. It has been decided to conduct the planting of almost all the wheat fields of the regions with complexes and detachments, of which almost 3,500 have been formed this year--the largest number in recent years. All of them are staffed with two shifts of drivers and have their own teams for technical servicing of the machines. Seeds of strong wheat are being placed in the soil. The republic occupies one of the leading positions in the country with respect to the production of these. During the past decade the sales to the state have doubled. Last year procurement workers received more than four-fifths of Kazakhstan wheat with the markings "strong" and "virgin." [Text] [Moscow SEL'SKAYA ZHIZN' in Russian 16 May 82 p 1] 11772

PLANTING VIRGIN SOIL--Alma-Ata--In the main grain bin of Kazakhstan--the northern oblasts--many farms began planting wheat. It was decided to conduct the planting of almost all the wheat fields in the region with complexes and detachments. Almost 3,500 of them have been formed--the largest number in recent years. All of them are staffed with two shifts of drivers and have their own teams for technical servicing of machines. The sets of planting equipment are now following the soil cultivation equipment without any interruption between cultivation and planting of the seeds. One-fifth of the wheat fields--considerably more than last year--will be planted in the new regionalized strains--Omskaya-9, Tselinaya-21 and Karagandinskaya-2, which produce high-quality grain. It has been decided to plant the wheat in ten days. [Text] [Moscow GUDOK in Russian 16 May 82 p 1] 11772

KAZAKH VIRGIN LAND--Virgin land farms of the northern oblasts of Kazakhstan have begun mass planting of grain crops. Complexes and detachments, of which almost 3,500 have been formed, will help to conduct the work in extremely short periods of time. They are all staffed with two shifts of drivers and have teams for technical servicing. The sets of planting equipment are following the soil cultivation equipment without any interruption between cultivation and planting of the seeds. [Text] [Moscow TRUD in Russian 16 May 82 p 1] 11772

MOISTURE RETENTION--Petropavlovsk--The moisture in the fields of Severo-Kazakhstanskaya Oblast will be retained before summer. Machine operators of all 500 planting complexes have begun spring harrowing of the plowed lands. In order to accumulate melted snow from twice repeated snow retentions, the farmers are not waiting for complete ripening of the areas. They are doing selective harrowing and extensively maneuvering the technical equipment. [Text] [Moscow TRUD in Russian 25 Apr 82 p 1] 11772



TENDING OF SUGAR BEETS--Ufa, 12 Jun--This year the farms in the Bashkirskaya ASSR have planted sugar beets on 80,000 hectares. At the present time, the members of the mechanized teams are striving to achieve a high plant density on each hectare -- no less than 85,000-90,000. Specialized detachments of Sel'khozkhimiya are furnishing assistance in combating the weeds and pests. At the kol'khozes imeni Sverdlov and Usen' and at the Il'chimbetovskiy Sovkhoz in Tuymazinskiy Rayon, for example, they treated all of the plantations with herbicides. This operation involved the extensive use of hose sprayers which were available on the farms. The beet growers plan to obtain a high yield. /by V. Orlov/ /Text/ /Moscow SEL'SKAYA ZHIZN' in Russian 13 Jun 82 p 1/ 7026

FAST PLANTING--Rostov-on-Don--Despite the late spring farmers of Rostovskaya Oblast are conducting field work considerably ahead of last year's schedule. At the basis of their success lies advanced organization of labor, highly productive utilization of technical equipment and the good service of the people in the fields. Spring-time in the Don area is such that the machine operators take the harrowing equipment out onto the fields in February and then come the sets of seeding equipment. This year everything is the opposite. The sunshine during the first part of April was a joke for then came more frequent rains, and only after a week was it possible to begin planting. "Nonetheless planting of early spring crops was completed a week earlier than it was last year," the oblast's head agronomist, A. P. Pal'chensko, summed up the results of the first stage of the spring field work with obvious satisfaction. "And besides this it was necessary at the same time to restore the winter crops on a half million hectares. This is what the flowline method means in action." No, the field conveyor is nothing new. Grain growers throughout the country are well aware of the so-called Ipatovo method of harvesting. It is akin to any industrial conveyor, all of whose units operate efficiently and smoothly. But what happens when it is applied to the spring fields? Agricultural workers of the oblast have been carefully preparing for this since winter. Now, having completed the planting of early spike and pulse crops on most of the areas as well as the restoration of the winter crops, the farmers have devoted themselves fully to preparing the soil for sunflowers, corn and other row crops. They are being cultivated with industrial technology on almost 350,000 hectares. In a word, everything was envisioned so as to justify the motto "increased productivity of the fields for the anniversary year," which is the one under which farmers of the Don are competing. [Excerpts] [Moscow TRUD in Russian 24 Apr 82 p 1] 11772

LATE SPRING--This spring was almost a half month late in coming to the southern regions of the Don. As soon as the days became warm the grain growers of Rostovskaya Oblast began planting early spike crops. Farmers of Tselinskiy Rayon have taken 160 sets of planting equipment out onto the fields. They will have to plant 18,000 hectares in spring crops. [Text] [Moscow TRUD in Russian 16 Apr 82 p 2] 11772

KALMYK SUNFLOWERS--Elista--Farmers of Kalmykiya have found great possibilities in sunflowers of which they began mass planting yesterday. Seeds processed with high-frequency currents were placed in well prepared plowed soil. This will make it possible to increase the return from each hectares of fields. [Text] [Moscow TRUD in Russian 25 Apr 82 p 1] 11772

VOLGA SNOWFALLS--Kuybyshev--The abundant snow that has fallen recently in the Volga area made it possible for farmers of the oblast to step up work for accumulating winter moisture for the future harvest. The snow is now being retained in Volzhskiy, Kinel'skiy and Klyavinskiy rayons. The snow plowing has already been completed on a total area of about 300 hectares in the area. [Text] [Moscow GUDOK in Russian 29 Jan 82 p 1] 11772

COTTON SOWING COMPLETED--Yampol', Vinnitskaya Oblast--The beet growers in Yampol'skiy Rayon -- the initiators of an all-union competition for high final work results -- have successfully passed their difficult spring test. Yesterday they completed their sowing work. The seed has been planted on 8,250 hectares of beet fields and in a rapid manner -- within 50 working hours. This was promoted by the group method of equipment usage. The partners of the farmers in work collaboration -- the sugar producers of the Gonorovskiy Pland and the specialists attached to the All-Union Scientific Research Institute of Sugar Beets -- controlled the course of the sowing work. As a result of joint efforts, the foundation was laid for obtaining no less than 50 quintals of sugar from each hectare. "We have resolved to hold firmly to the goal undertaken for the years of the Tenth Five-Year Plan" stated the 1st secretary of the Yampol'skiy Rayon Party Committee I. Steblina, "But the expenses for achieving this are only one half what they were earlier. The industrial technology, which we are employing on all of our sowing areas, is eliminating the need for manual labor. One hundred and five mechanized teams have become the masters of the plantations. At the same time, a base is being created for further increasing the production of sugar. The indicators of the Kolkhoz imeni Kotovskiy, where the beet yield is 500 quintals per hectare and the sugar yield -- 60 quintals, serve as a bench mark for the rayon. The oblast's beet growers are following the example set by the workers in Yampol'skiy Rayon. [Text] [Moscow TRUD in Russian 7 Apr 82 p 1] 7026

SUGAR BEET SEED SHIPMENTS--Kiyev, 8 Apr--The Vinnitsa Seed Plant has shipped more than 8,500 quintals of sugar beet seed over and above the plan to farmers in Kazakhstan and the Baltic Republics. The enterprise supplied the beet growing farms of the Ukraine with seed stock ahead of schedule. The collectives of all three seed plants in the Ukraine completed ahead of schedule their preparation of seed for the beet growers. Almost 300,000 quintals of seed for use during the sowing campaign have been shipped. [by S. Luzgan] [Text] [Moscow SEL'SKAYA ZHIZN' in Russian 9 Apr 82 p 1] 7026

BUSY PERIOD --Poltava, 16 Apr--The present period is a busy one for the oblast's farmers. Having completed their sowing of early grain crops in a rapid manner, they are now applying a top dressing to their winter wheat, which occupies an area of approximately 600,000 hectares. The sowing of sugar beets has commenced; they will be grown on more than 160,000 hectares in Poltavskaya Oblast. This work is being carried out successfully in Karlovskiy, Orzhitskiy and Lohvitskiy Rayons. This year the industrial technology for sugar beet cultivation will be employed on 50,000 hectares. [by P. Gavrilenko] [Text] [Moscow SEL'SKAYA ZHIZN' in Russian 17 Apr 82 p 1] 7026

BEET SALES TO STATE--Immediately following Yampol'skiy Rayon in Vinnitskaya Oblast, many other beet growing rayons throughout the republic completed sowing their principal technical crop -- sugar beets. The beet growers and sugar industry workers in Cherkasskaya Oblast have launched a mass competition aimed at selling no less than 4.68 million tons of high quality beet raw materials (312 quintals per hectare in credited weight) to the state and producing 555,000 tons of sugar, or 37 quintals per hectare of planting. /Text/ /Moscow IZVESTIYA in Russian 15 Apr 82 p 1/ 7026

SUGAR BEET SOWINGS--Khmelnitskiy, 24 Apr--Notwithstanding the unstable weather, the oblast's farmers are intensifying the tempo of their spring field work, having completed their sowing of early grain and pulse crops. All of the farms are presently sowing sugar beets. This work has been organized especially well at kolkhozes and sovkhoses in Starokonstantinovskiy Rayon. The machine operators are devoting a great amount of attention to the pre-sowing preparation of the soil, to the uniform placement of the seed in the soil and to ensuring that the rows are arranged in straight lines. /Text/ /Moscow SEL'SKAYA ZHIZN' in Russian 25 Apr 82 p 1/ 7026

SUGAR BEET EQUIPMENT PROBLEMS--Sumskaya Oblast--There is good reason for viewing Belopol'skiy Rayon as the pacesetter for the beet growers in Sumskaya Oblast. Approximately 15,600 hectares have been set aside for cultivating the sweet roots in this rayon. One hundred and fifteen mechanized teams have moved out onto the plantations. This year they are cultivating this labor-consuming crop using the industrial method. Many machine operators are competing to obtain no less than 45-50 quintals of sugar from each hectare. The machine operators in Velikopisarevskiy Rayon are working in an organized manner. They were some of the first in the oblast to complete sowing this technical crop on an area of 8,000 hectares. This year, based upon a recommendation by the rayon party committee, a system has been developed here for offering incentives to the beet growers not only for the final results but also for carrying out important intermediate operations, without which it would be impossible to obtain high yields. In past years the machine operators themselves established the sowing norms. The principal requirement consisted of achieving a definite plant density once the rows had been formed. Another approach is being employed at the present time. The sowing must be carried out such that in each row there are 6-7 stalks per row. A bonus of 6 rubles per hectare is awarded to each team that achieves this. "The campaign to achieve quality on the spring fields" stated the 1st secretary of the Velikopisarevskiy Rayon Party Committee I. Machulin, "is in fact a campaign to obtain high yields. In addition to material and moral incentive measures, commencing with the very first days of spring strict control was established over the observance of the agrotechnical methods for all operations. Approximately 130,000 hectares are to be used for beets in Sumskaya Oblast. The plans call for no less than 3.3 million tons of the sweet roots to be sold to the state. The farmers in Romenskiy, Akhtyrskiy, Glukhovskiy and Trostyanetskiy Rayon are carrying out their sowing operations at a high tempo. At the same time, the farms in Krasnopol'skiy and Sumskiy Rayons are slow in starting their sowing work. Here the machine operators are still awaiting the arrival of fine weather. A shortage of certain units is seriously delaying the work of teams responsible for cultivating beets using the industrial method. In particular, very little equipment is available for applying herbicides. The machine operators are forced into developing their own devices. They are forced to await the arrival of a new

precision sowing unit, despite the fact that it is well known that the machine underwent testing and is valued highly by the specialists and beet growers.

/by I. Lakhno/ /Excerpts/ /Moscow PRAVDA in Russian 21 Apr 82 p 1/ 7026

NEW SUGAR BEET VARIETY--Kiev, 6 May--Today the machine operators in four oblasts of the Ukraine -- Volynskaya, Dnepropetrovskaya, Kirovogradskaya and Khar'kovskaya -- completed sowing their sugar beets. For the republic as a whole, this crop has been sown on 8 out of every 10 hectares. A feature of this present sowing campaign -- the extensive introduction of a new breeding innovation and advanced work means and methods. For the very first time, 20,000 hectares have been set aside for the Yubileynyy hybrid, which inherited valuable qualities from monospermous and polyspermous plants. During tests carried out in Cherkasskaya Oblast, the maximum root yield obtained amounted to an average of 582 quintals -- roughly 50 quintals more than the standard. In terms of its sugar yield, Yubileynyy surpasses to a considerable degree all of its own predecessor varieties: a hectare of plantation space furnishes up to 104 quintals of finished product. Of importance also is the fact that it is suitable for cultivation using the industrial technology. The plant breeders have also turned over to the farmers the Vnisovskiy-12 hybrid, which proved its worth on irrigated tracts in Nikolayevskaya Oblast. On almost one third of all of the sugar beet plantations, the sugar beets will be cultivated with no manual labor employed. This year the Ukrainian beet growers plan to obtain more than 32 quintals of finished product per hectare. They have actively joined in carrying out the special purpose, all-round, scientific-production program "Sakhar," developed in the republic in conformity with the decisions handed down during the 26th CPSU Congress. /Text/ /Moscow SEL'SKAYA ZHIZN' in Russian 8 May 82 p 1/ 7026

SUGAR BEET DEVELOPMENT--Cherkassy, 23 Jun--The oblast's machine operators are persistently striving to achieve a high sugar beet yield. On a majority of the farms where they were sown early and the plantings were skilfully tended, the plants already have good foliage and are rapidly gaining in plant bulk. The beet growers formed their plant densities during the best periods, they applied a nitrogen fertilizer top dressing to them and they are presently applying a phosphorus-potassium top dressing. Convinced based upon their own experience that two early (prior to 25 June) top dressings for the sugar beets provide an increase in yield of 50-80 quintals per hectare, they are striving to apply a second top dressing as rapidly as possible. The machine operators are combating the pests and diseases using all available means. /by S. Luzgan/ /Text/ /Moscow SEL'SKAYA ZHIZN' in Russian 7 May 82 p 1/ 7026

HEALTHY SEEDLINGS--Penza, 29 May--The beet growers in Tamalinskiy Rayon, in commemoration of the 60th anniversary of the USSR, have resolved to provide the homeland with 100,000 tons of root crops in the autumn. Despite the capricious spring weather, they sowed their sugar beets during the best periods on an area of 5,500 hectares. Recently, the number of beet production experts has increased here. Not only individual teams but in fact entire farms have begun obtaining 300 quintal yields. The sugar beets are being cultivated by 47 mechanized teams, all of which intend to increase their yields considerably. Healthy seedlings have appeared out on the plantations. The machine operators have commenced tending their crops. In accordance with the working plans, the thinning out of clusters of the plants will be completed in just 10-12 days. /by A. Andreyev/ /Text/ /Moscow SEL'SKAYA ZHIZN' in Russian 7 May 82 p 1/ 7026

INDUSTRIAL TECHNOLOGY INTRODUCED--The sowing of sugar beets is nearing completion throughout the republic. They have already been sown on an area of 73,100 hectares. This year the industrial technology has been introduced on one third of the beet plantations. At the present time, quite favorable conditions for obtaining normal seedlings prevail in a number of rayons. The low supply of soil moisture is having an effect, especially at the seed placement depth. The farm specialists must undertake specific measures aimed at ensuring the required plant density on each beet field and they must commence the tending of the crop. /Excerpts/ /Alma-Ata KAZAKHSTANSKAYA PRAVDA in Russian 24 Apr 82 p 1/ 7026

WITH AID OF MACHINES --Alma-Ata, 25 Jun--The sugar beet plantations in Alakul'skiy Rayon in Taldy-Kurganskaya Oblast are very pleasing to the eye. Owing to the extensive introduction of progressive work methods and technical innovations, the beet growers, during a period of 9 days, carried out their sowing work this year using the single grain interval-cluster method, which served to form the assigned plant density. At the present time, on the plantations of the teams headed by V. Adamov, B. Ivanov, A. Kuz'minskiy at the Ucharal'skiy Sovkhoz, not one worker with a chopper is to be seen. The blind cultivation of inter-row spacings is being carried out here using cultivators reequipped for a small shelter belt. All 72 of the rayon's mechanized teams have organized their tending of the crops in a similar manner. Scientists from the Alma-Ata Institute of the National Economy and specialists from the Kazsel'khozmechanizatsiya Scientific-Production Association are providing the beet growers with active assistance. /by V. Krinitskiy/ /Text/ /Moscow SEL'SKAYA ZHIZN' in Russian 26 Jun 82 p 1/ 7026

DETACHMENTS IN OPERATION--Stavropol'--Field workers of the steppe regions of the Stavropol' area did not miss the most productive time periods for planting even with spring being almost a month late. Today they finished placing the seeds of early spring crops in the soil. In a short period of time the planting of barley, oats, peas, coriander, pulse and grass mixtures and grasses was conducted on an area of almost 300,000 hectares. In an organized way, using only consolidated complex detachments, the machine operators are ready to carry out planting on those areas that have been allotted for heat loving crops. For example, they will plant corn for grain and silage on about 400,000 hectares. [Text] [Moscow SEL'SKAYA ZHIZN' in Russian 14 Apr 82 p 1] 11772

NO TIME LOST--Ul'yanovsk--Since the first days of good weather the kolkhozes and sovkhoses of the oblast began to retain the moisture and top dress the winter crops. Machine operators of Starokulatinskiy Rayon achieved high labor productivity in harrowing the soil. They are actively accumulating moisture in Nikolayevskiy and Kuzovatovskiy rayons. On the eve of the First of May many farms of the oblast have begun planting grain and pulse crops. [Text] [Moscow SEL'SKAYA ZHIZN' in Russian 2 May 82 p 1] 11772

CSO: 1824/312



## LIVESTOCK FEED PROCUREMENT

### ESTONIAN FEED PROCUREMENT REVIEWED

#### Progress Report

Tallinn SOVETSKAYA ESTONIYA in Russian 3 Jun 82 p 2

/Article by L. Tamm: "On the Republic Staff"/

/Text/ The republic's deputy minister of agriculture Yu. Kulbin held a meeting of the republic's staff for the procurement of feed.

The spring sowing of crops has been completed for the most part throughout the republic. The plan for the sowing of grain crops and the planting of potatoes has been fulfilled and over-fulfilled. The sowing of corn and flax has yet to be completed. The farms in Khaapsaluskiy, Khiyumaaskiy and Kingiseppskiy Rayons have fallen behind in their sowing of corn and those in Yygevaskiy, Tartuskiy, Valgaskiy and Pyarnuskiy Rayons have still not fulfilled their plan for the sowing of flax.

The chief concern at the present time is tending the crops and waging a chemical campaign against the weeds. The largest areas treated with herbicides are on farms in Tartuskiy, Vil'yandiskiy and Rakveraskiy Rayons, while at the same time the campaign against weeds has been carried out on only 5-10 percent of the required areas in Khiyumaaskiy and Raplaskiy Rayons. The staff has directed the attention of all of the farms to the fact that intensive seedling growth has commenced owing to the hot weather and thus any delay in carrying out the chemical treatment work can cause the plantings to perish. The sowing rate for the grain crops was 5-7 percent of the plan per day and the same rate must be employed for the chemical treatment of the fields. The last period for treating the winter crops with the Tur preparation is presently at hand.

Weeds are sprouting on many potato plantations in Khar'yuskiy Rayon. The first inter-row tilling of the potatoes should already have been completed and it is now time for the second tilling of the inter-row spacings.

The previous staff required that all units concerned with the preparation of grass meal be included in the work. Commencing with the first days of the haying period, they had to work in three shifts. But this decision was not carried out very well. There are 273 grass meal units on farms throughout the republic. Prior to the beginning of this week, only 65 were in operation and only individual units were operating in three shifts. An inspection revealed that grass remains on the pastures of a number of farms which was not spoiled by the cattle during the first round of grazing. It would be wrong to repeat the mistakes of last year, when the grass meal was prepared from old grass. This valuable feed, consisting of young grass rich in vitamins, must be procured without delay.

The staff requirement concerning the organization of grazing sectors was not carried out. An inspection has established the fact that at the Raykkyula Kolkhoz in Raplaskiy Rayon and at the Myar'yamaa Sovkhoz the herds are grazing on areas of 10-20 hectares, where large portions of the grass have simply been trampled down by the cattle. The same situation prevails on many other farms.

There are 8,500 hectares of irrigated land in the republic and yet sprinkling is being carried out on only 1,322 hectares of grassland and vegetable plantings. The moisture supplies in the soil are decreasing and thus it is especially beneficial for sprinkling to be carried out at the present time.

This year the procurement of peat litter is being carried out more successfully than last year, but it must be remembered that high quality peat litter can be obtained only during the month of June and thus the rayon enterprises of Sel'khoztekhnika must, on a daily basis, supply 10 percent of the annual task for peat litter.

#### Deficiencies Analyzed

Tallinn SOVETSKAYA ESTONIYA in Russian 16 Jun 82 p 1

[Article by L. Sher: "On the Republic Staff"]

[Text] It is the middle of June. The time is at hand for the mass procurement of feed, a time when a lost day cannot be tolerated. How is this time being used on farms throughout the republic? This was the subject of a meeting held yesterday of the republic's staff for feed procurements. The meeting was conducted by the deputy minister of agriculture for the Estonian SSR, O. Tamberg.

Of almost 300,000 hectares of grass, 12 percent has been mowed (last year 8 percent). A worthy increase was provided last week in Vil'yandiskiy Rayon -- 13 percent and in Paydeskiy and Yygevaskiy Rayons -- 12 percent. The lowest rates still prevail in Rakvereskiy Rayon -- only a 5 percent increase during all of last week -- one daily norm. The production of grass meal is proceeding at a rapid rate. Nineteen percent of the planned amount (last year 10 percent) has already been procured. But the period for the production of this type of feed is already passing. Last week the quality of the meal fell sharply and analysis revealed the nutrient content at the 4th and 5th grade levels. Such feed does not justify the fuel expenditures required for its production.

Paydeskiy Rayon is presently the leader in the laying in of silage; it has laid away one fifth of all silage procured -- 6,400 tons.

What is the reason for the sharp differences in feed procurement rates among the rayons? The situation in Rakvereskiy Rayon, which occupies a line in the final portion of the republic's summary, was analyzed. Specialists who visited the farms uncovered a number of shortcomings. For example, some kolkhozes and sovkhoses spent time waiting for the grass to show further growth and, as a result, it became overripe. Subsequently, they were late in operating their grass meal production units. However, the chief reason for the rayon falling behind -- a lack of moisture in the soil. From the moment the sowing was completed up until yesterday, the rayon had had practically no precipitation. And the minute amount that did fall was distributed in a very irregular manner. As a result, the Vyayke-Maar'ya Kolkhoz, for example, is carrying out its feed procurement work at a maximum tempo while the Triygi Sovkhoz, which is located nearby, is able to mow only low-growing blighted stalks.

On the other hand, there has been an abundance of moisture in Kingiseppski Rayon. In the spring the water remained stagnant out on the fields for an extended period of time and this too resulted in a delay in starting the haying work. Here the grass was cut down on 10 percent of the land. True, this is more than 1 year ago when the weather conditions were better.

Nevertheless, considerably more feed could have been procured but for the fact that many farms failed to attach the proper value to the role played by early-ripening varieties of grass and, as a result, the rhythm of the green conveyor line was disrupted: the quantity of early-ripening grasses was low, they were harvested quickly and the mid-season ripening varieties were not suitable.

Experience has once again proven that the mowing must be carried out 4-5 days prior to the optimum period. This will prevent losses from occurring as a result of the dragging out of the busy harvest season.

The chief concern at the present time -- the rates. The daily norm must be no less than 5 percent of the land to be mowed. Moreover, the types of feed to be produced will be dependent upon the weather.

Grass meal should not be produced from overripe grasses. At the present time, its production should be carried out using mainly alfalfa and clover.

Without any further delay, the agronomists must determine the fields remaining for the harvesting of grass seed plants. A shortage of seed for next year's sowing cannot be tolerated.

In summarizing the results of a discussion on the use of sprinkling units, the staff emphasized that maximum use must be made of them and they should be operated in two shifts.

The associations of Goskomsel'khoztekhnika for the Estonian SSR were criticized for their weak collaboration with the farms in the proper maintenance of the feed harvesting equipment and attention was focused on the need for eliminating the "narrow-minded interests" of those motor pools in the system which did not fulfill their obligations with regard to centralized transport operations.

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## LIVESTOCK

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### PROGRAM FOR INCREASING LIVESTOCK, FEED PRODUCTION IN UKRAINE

Moscow ZHIVOTNOVODSTVO in Russian No 4, Apr 82 pp 14-16

[Article by A. M. Okopnyy, deputy minister of agriculture of the Ukrainian SSR:  
"Surmounting Arrears"]

[Text] In implementing the decisions of the 26th CPSU Congress, the 26th Congress of the Communist Party of the Ukraine and the November (1981) Plenums of the CPSU Central Committee and the Central Committee of the Communist Party of the Ukraine, agricultural workers of the republic are working to provide for accelerated development of animal husbandry and even more fully satisfy the needs of the population for food products.

It is now becoming decisively important to intensify the branch in all ways and increase its efficiency so that, on the basis of radical improvement of feed production and breeding work and efficient utilization of capital, it will be possible to achieve a fundamental increase in output as a result of increased productivity of the animals.

To this end the republic has developed long-term comprehensive programs for increasing the production of milk, beef, pork, sheep products and feeds.

Under the Eleventh Five-Year Plan the republic intends to increase the average annual volumes of meat procurements by 16 percent and milk, by 7 percent. To do this it is necessary to increase the milk yields per cow to 2,600-2,700 kilograms, and the output of beef on an average per cow to 360-400 kilograms, and to obtain 1 quintal of meat from each head of hogs.

The solution to these problems will depend largely on the condition of the feed base and on efficient and effective utilization of feed resources. The republic has done a large amount of work to improve feed production. The structure of the planted areas has been revised and the area planted in perennial grasses has been increased by 625,000 hectares, most of which is planted in legume crops, and the irrigated areas planted in feed crops have increased by 16,300 hectares.

Feed production is being separated into an independent branch. There are 8,400 mechanized detachments engaged in producing feeds in the republic. The quality of the feeds that are procured is controlled by 1,443 laboratories.

During the current wintering period 2 million tons more hay were procured than last year, and 200,000 more tons of mixed silage. Many farms have extensively introduced progressive technologies for procuring feeds: 1.9 million tons of hay were procured by the method of active ventilation and pressing, and about 10 million tons of silage mass were stored up using chemical preservatives.

The quality of the procured feeds has improved. The proportion of hay in the first class has increased by 17 percent, silage--by 11 percent, and grass meal--by 6 percent.

The many years of practice of the leading hog and poultry raisers of the Ukraine and the experience of animal husbandry workers in other republics have shown that the utilization of mixed silage in the rations of hogs and poultry makes it possible to reduce expenditures of grain by 30-50 percent, to augment the ration with vitamins and other biologically active substances, and, on the basis of this, to reduce the production cost of products. By using mixed silage the Izyum interfarm enterprise in Khar'kovskaya Oblast reduced expenditures of concentrated feeds by 16 percent and increased the average daily weight gain of hogs by 20 percent.

Mixed silage is used extensively for fattening animals on the farms of Poltavskaya and Odesskaya Oblasts. On the farms of Odesskaya Oblast the introduction into the ration of hogs of up to 30 percent mixed silage (in terms of the nutritional content of the ration) contributed to increasing the average daily weight gain of the hogs on fattening by 19.5 percent and made it possible to save from 50 to 80 kilograms of mixed feeds per quintal of gain of live weight.

Valuable experience in utilizing mixed silage in the rations of ducks was accumulated at the Tarashcha interfarm enterprise in Kiev Oblast. The enterprise reduced expenditures of mixed feeds by 15-20 percent.

Taking into account the great effectiveness of using mixed silage in feeding hogs and poultry, the managers and specialists of the farms of the republic are setting the task of increasing its annual procurements to 3 tons per 1 sow, to 60 kilograms per goose, to 30 kilograms per duck and to 15 kilograms per laying hen.

The experience of past years and the course of wintering of livestock this year show that things are arranged well on those farms which have continuous preparation of feeds. Therefore, primary attention is devoted to questions of processing and preparing feeds for distribution.

The feed industry becomes stronger each year. There are now 22,000 feed shops and feed kitchens in operation on the kolkhozes and sovkhoses of the republic. Moreover, 2,800 feed platforms have been constructed for mechanized preparation of feed mixtures. There are 528 mixed feed plants in operation and 12 interfarm shops for preparing whole milk substitutes. All this makes it possible for the farms to use feeds only in prepared form.

Since a large part of the rations of ruminant animals is straw and silage, special attention is devoted to preparing them for distribution. Coarse and juicy feeds

are crushed, improved with concentrates and molasses and fed in mixed form. About 43 million tons of these mixtures were prepared during the winter, which made it possible to increase the digestibility and the nutritive value of the feeds by 10-15 percent.

Scientific research institutes of the republic and the country are recommending to production workers about 20 various methods of increasing the nutritional value of coarse and juicy feeds. The most effective of them--chemical processing of straw and the use of ammonia on silage and pulp--are being extensively applied locally.

At the Grigorov interfarm enterprise in Kiev Oblast the livestock are fed straw that has been treated with caustic soda, which made it possible to increase the average daily weight gain by 15-20 percent and reduce expenditures on feeds per unit of output. The chemical method of treating straw is being applied extensively on the farms of Krymskaya, Ivano-Frankovskaya, Kiev, Nikolayevskaya and other oblasts. On the farms of Krymskaya Oblast there are 208 shops in operation for chemical processing of straw.

Treating straw in ricks with ammonia water or liquid ammonium produces a great effect. This increases the protein content to 6-7 percent. The straw is treated in ricks with ammonia water and liquid ammonium by specialized subdivisions of the rayon Goskomsel'khoztekhnika association. During the winter period the farms will treat 10.1 million tons of straw by the chemical method and 5.6 million tons with ammonia water and liquid ammonia.

For efficient utilization of feeds almost all of the rayons have organized the production of full-ration briquettes and granules.

Workers of the Ukrainian SSR Scientific Research Institute of Animal Husbandry of the Forest Steppe and Forested Area and the Ukrainian Scientific Research Institute of Feeds have established that animals that have been fed full-ration granules with a straw content of up to 50 percent have an average daily weight gain of 1,000-1,200 grams while that of the animals in the control group was 850-950 grams.

The scientific conclusions are utilized extensively in practice. Granulated feeds are used for fattening livestock on the specialized Kolkhoz imeni Ul'yanov in Belopol'skiy Rayon in Sumskaya Oblast. It contains up to 70 percent of crushed straw, 20 percent of a mixture of concentrated feeds, 10 percent grass meal and also carbamide and mineral feeds. The average daily weight gain is 800-1,000 grams.

On the Zori Kremlya Kolkhoz in Arbuzinskiy Rayon in Nikolayevskaya Oblast, by using full-ration briquettes that are prepared at the interfarm mixed feed plant for fattening livestock they obtain an average daily weight gain of 1,000-1,100 grams.

Many farms fatten livestock on pulp which contain little protein, phosphorus or vitamins. The effectiveness of using pulp is increased significantly by applying it in granulated form with supplements with amidomineral and biologically active substances.

Such technology for using pulp makes it possible to obtain high productivity of the livestock. On the Chervona Zirka Kolkhoz in Volochisskiy Rayon, the Kolkhoz imeni Lenin in Letichevskiy Rayon and the Ukraina Kolkhoz in Dunayevetskiy Rayon in Khmel'nitskaya Oblast, by fattening livestock with amidomineral pulp granules they obtain up to 950-1,100 grams of weight gain per day.

Under the conditions of the current wintering of the livestock a large amount of attention has been devoted to efficient utilization of silage. In order to enrich the silage with nitrogen and reduce the acidity the majority of farms have introduced treating silage with ammonia water. This makes it possible to increase the protein content in corn silage 1.2-1.5-fold, and therefore the farms have used more than 20 million tons of ammonia treated silage during the winter period.

Today animal husbandry workers have no more important task than to obtain animal husbandry products with reduced expenditures of concentrated feeds. Under modern conditions of animal husbandry the most efficient form of utilizing concentrated feeds is to use them in mixed feeds. An interfarm mixed feed industry has been created in order to supply the farms with more mixed feeds.

At the present time there are more than 400 interfarm mixed feed plants in operation in the republics. Their annual productivity is 10 million tons. The proportion of mixed feed in the overall volume of concentrated feeds that are used in the republic is 54 percent.

The majority of enterprises are changing over to multicomponent norm setting, which makes it possible to improve the quality of mixed feeds considerably.

They are assimilating the production of starter and prestarter mixed feeds for young pigs and calves on the basis of extrusion of grain. The utilization of extruded feeds in feeding animals makes it possible to save up to 10-15 percent of the wheat and 25-30 percent of the peas.

In 1982 at interkolkhoz mixed feed plants it is intended to increase the production of mixed feeds by 1 million tons, dry nutritive yeasts by 900 tons, full ration briquettes and granules by 100,000 tons, and starter mixed feeds by 60,000 tons.

It is also intended to increase the quantity of fillers in mixed feeds for hogs to 40 percent and for poultry to 10-15 percent, and to reduce the expenditures of concentrated feeds for large horned cattle by 30 percent as compared to the 1980/81 wintering of the livestock.

One of the sources for making up for the shortage of protein in the rations of ruminants is carbomide concentrate which is obtained by the method of extrusion of a mixture of grain raw material, urea and bentonite.

At interkolkhoz mixed feed plants they have constructed 167 shops and lines for producing carbomide concentrate with an overall capacity of 90,000 tons a year.

During the wintering period increased productivity of livestock and poultry and improved quality of the products that are produced depend largely on the quality of

the feed rations and their balance in all nutritive substances. This is why zoo-technicians and all farm workers are faced with the task of taking a creative approach to making up the rations, taking into account the conditions of each farm, searching for reserves and taking practical measures for augmenting the rations with components that are in short supply. Thus, for example, during the course of this wintering period about 185,000 tons of carbomide were used for feeding livestock, which made it possible to eliminate the shortage of protein by 450,000-480,000 tons.

The task of party, soviet, and management agencies consists in making the valuable experience of specialists and farm managers who have efficiently utilized feed resources the property of each animal husbandry worker so that not a single kilogram of feeds is fed without the appropriate preparation. Republic, oblast and rayon schools of advanced practice for efficient utilization of feeds in animal husbandry have been in operation.

During the course of the wintering of the livestock farm managers and zooveterinary specialists have been in charge of questions of reproducing the herd and preserving and increasing the number of head of livestock and poultry. Even when preparing for wintering the young animals for replacement were regrouped and concentrated on special farms or in special premises. Experienced animal husbandry workers were assigned to care for them and they were fed balanced rations. Measures were taken to improve the organization of insemination of cows and heifers, and the points for artificial insemination of the animals during the winter period operated rhythmically.

An army of many thousands of animal husbandry workers are working on the farms of the kolkhozes and sovkhoses. Local party, soviet and agricultural agencies display constant concern for improving working conditions and the culture and life of the animal husbandry workers. Operating on the farms are schools for increasing occupational mastery where the animal husbandry workers learn the latest achievements of science and advanced practice.

At the present time there are 9,000 houses of animal husbandry workers functioning on the kolkhozes and sovkhoses as well as 2,930 preventive medicine facilities, and stores and dining rooms have been opened on the territory of the majority of the farms.

"Shock labor on the shock front!"--such is the motto of this year's competition of animal husbandry workers.

The Presidium of the Ukrainian Trade Union of Sovkhoses, the Ukrainian SSR Peoples' Control Committee, the Central Committee of the Ukrainian Komsomol, the editorial staff of the newspaper PRAVDA UKRAINY, and the Ukrainian SSR State Committee for Television and Radio Broadcasting has conducted a public inspection of the wintering of livestock which contributed to increasing the effectiveness of socialist competition of workers of farms and complexes and to fuller utilization of all the reserves for increasing the productivity of the public herd.

As a result of raising the level of local organizational work, utilizing additional resources for accumulating feeds and better organizing labor on the farms during

the wintering period as compared to the corresponding period of last year, meat production has increased on the kolkhozes and sovkhoses of 14 oblasts, milk production--in 7 oblasts, and egg production--in 19 oblasts. Many oblasts have increased the milk yield per cow and the average daily weight gain of large horned cattle and hogs that are being fattened, and they have improved the preservation of the herd, especially of large horned cattle and sheep.

During the period of mass calving a considerable amount of attention was devoted to correctly maintaining and increasing the milk yield of newly calved and highly productive cows. Many farms have created special groups for completing the raising and the final fattening of livestock, which will make it possible to efficiently utilize feed resources and provide for large weight gains of young animals.

The republic ministry of agriculture and the oblasts and rayons have developed and are implementing organizational and technical measures to provide for fulfillment of the plans and commitments for 1982 and overcome the arrears in the production and sale to the state of animal husbandry products which accrued in the summer period of 1981.

It is intended to further improve the structure of areas planted in feed crops, to create green conveyors, and to transfer the animals to summer camp maintenance in a planned way.

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## LIVESTOCK

### PROBLEMS OF BELORUSSIAN LIVESTOCK BREEDERS DISCUSSED

Minsk SEL'SKAYA GAZETA in Russian 7 May 82 p 2

[Article: "What Alarms Selection Workers?"]

[Text] There are 25 breeding farms in our republic. All of them have great capabilities of exerting the proper influence on the level of development of animal husbandry. It is the duty of the breeding farms to improve existing breeds of livestock, to create promising new types and lines, and to sell young breeding animals, primarily high-class elite breeders: bulls, boars, and rams. They must also increase the genetic potential of the animals on public and private farms.

The republic's scientists and practicing selection workers have achieved certain successes. But what is concerning selection workers today? What are they working on? What problems do they encounter? These were the subject of a public inspection whose participants included animal husbandry workers, machine operators and specialists of the breeding farms, farm managers, scientists of the Belorussian Scientific Research Institute of Animal Husbandry, workers of the republic trust of breeding farms, and representatives of public organizations, including: Hero of Socialist Labor, director of the Krasnaya zvezda breeding farm in Kletskiy Rayon, I. Plavskiy; candidate of agricultural sciences, chief of the shop for testing breeds and lines for compatibility of the Budagovo experimental production farm in Smolevichskiy Rayon, V. Gorin; head agronomist of the Nacha breeding farm in Lyakhovichskiy Rayon, A. Tseloguz; chief of the production division of the public trust of breeding farms, Yu. Kochkin; and special correspondent of SEL'SKAYA GAZETA, L. Kolbasko.

Many would find it strange to look at the small farm and see standing there perfectly formed thoroughbred breeding bulls with unusual shading of the coats. Shot with blue--elegant shades of blue, almost pink, as though illuminated from within--there are Aquitainian breeds, the recently imported Salars which are similar to small bison, and the white head Herefords, which are smaller than the giant Sharol whose weight can reach two tons. A real exhibit! In fact this is one of the production shops--for evaluating bulls of beef breeds--on the Budagovo breeding farm. There



is also another farm here for dairy bulls of the black spotted breed. And another one for breeding rams. There is also a control experimental station for hogs. . . .

Each shop is a working laboratory for scientists and selection workers. There are beautiful thoroughbred livestock everywhere. But their value is far from determined by their exterior. Rather, it is determined by such purely industrial characteristics as intensiveness of growth--in terms of average daily weight gain; economy--in terms of expenditure of feeds; and quality of the sire--in terms of sperm production. The best that is created by the breeding farms are selected according to these and many other indicators.

Many people are familiar with the names of such breeding farms as Ross', Korelich, Vedrich, Krasnaya zvezda and Nosovichi. And in a recent special edition of SEL'SKAYA GAZETA they gave the winners of last year's socialist competition. Nine sovkhozes were noted for the best indicators in milk production. Five of them were breeding farms. The leading milkmaids of these farms obtained 4,000, 5,000, 6,000 and even 7,000 kilograms of milk from each cow. They include V. Busakova, V. Kulagina, R. Pavlenok, M. Naumenko and S. Tsarenok of the Vedrich breeding farm in Rechitskiy Rayon, A. Pokalo, V. Bulyushko and T. Afanasik of the Ross' breeding farm in Volkovysskiy Rayon, A. Bribovich, L. Mordan' and Yelena and Irina Ios'ko of the Krasnaya zvezda breeding farm in Kletski Rayon, and L. Kovaleva, M. Kolykhova and M. Kantur of the Berezok breeding farm in Gomel'skiy Rayon. Almost half of the leading milkmaids of the republic, working with milk lines and milk buckets, are from breeding farms.

Breeding farms are called the "heavy industry" of animal husbandry. And this is a correct definition: means of production are perfected on them. On the basis of these farms scientists and selection workers have already created the Belorussian black spotted breed of hogs and the Belorussian type--large white--BKB-1. The best of the lines when they are fattened an average daily weight gain of 750 grams, gaining about 100 kilograms in six months, and the expenditure of feeds is still minimal--about 3.6 feed units per kilogram of weight gain. This work was highly rated and noted as the best at the Exhibit of the Achievements of the USSR National Economy in Moscow.

Representatives of Belorussian breeds also perform well under industrial conditions. The main breeding farm of the republic delivered thoroughbred young animals to the Borisovski Sovkhoz-Combine imeni 60-letiya BSSR which obtained the least expensive pork in the country and the largest weight gain on fattening with the least expenditures of feeds. Now other hog raising complexes and commercial farms are receiving thoroughbred young animals and elite boars from breeding farms, which annually sell more than 30,000 head.

In the experimental shops there are even more promising hybrids which have been created on the basis of Belorussian breeds, using the genetic code of other breeds--Estonian bacon, Landras, Swedish Yorkshire and Hampshire. They have obtained so-called synthetic lines of hogs with clearly expressed meat qualities. It is really not worth discussing how complex this work is if, for example, it took more than 10 years to isolate the Belorussian type of hogs of the large white breed at the Nacha breeding farm, and the experiments required eight unrelated families of female hogs and five lines of bulls. The schema from which the experiments were conducted can be compared to that of a complex electronic instrument.



Scientists and selection workers of the republic have also done a good deal in breeding work with large horned cattle. The average annual sales of young of these animals have almost doubled during the past five years. The republic is creating a fatty milk type of Belorussian livestock with a productivity of 6,000-7,000 kilograms of milk a year with a fat content of up to 4 percent and a protein content of up to 3.5 percent. They have already established five families of elite, whose initiators were the highly productive cows of the black spotted breed. They also have their record setters. At the Korelichy breeding farm the cow Dernovka established an "absolute record" in the republic: 12,333 kilograms of milk were obtained from her last year. A new type of Belorussian black spotted cattle and two lines of highly productive bulls have been submitted for approval.

Nine rectangles--various agricultural enterprises--joined by 20 intersecting lines, designated by solid and dotted lines, points and "Morse code." These are the conventional symbols for the interrelations among enterprises in the schema of breeding work in dairy cattle raising. It is possible to trace the entire process from them. Here one obtains male calves from highly productive cows with annual milk yields of no less than 6,000 kilograms. In 6-9 months they are sent to Elever where they grow to "adulthood," are evaluated for the quality of the offspring, and, having already been tested, go to the state breeding enterprises which serve the kolkhozes and sovkhoses of the republic. Thus the most valuable elite bulls are revealed, the so-called improvers, those which hereditarily transfer the best qualities of their parents. The goal of the selection workers is to create and discover the absolute improvers, which become the continuers or initiators of new lines. Entire farms of young animals are obtained from these sires.

But at the present time the breeding farms still do not deliver enough of these sire bulls to the breeding enterprises. This is because of the small quantity of cows, with a productivity of more than 6,000 kilograms a year and a fat content of no less than 3.8 percent, from which they are obtained. According to data of last year's quality appraisal, the breeding farms have only about one-third of the required quantity of these cows. But the genetic capabilities of the herds make it possible to find considerably more highly productive animals.

Why? The conditions under which the breeding farms work do not make it possible to change the situation sharply in the near future. The provision of production capital, even on the best breeding farms of our republic where they obtain annual milk yields from cows of 4,500 kilograms and more, is not adequate for solving the selection problem. It amounts to about 140,000 rubles per 100 hectares of agricultural land and an energy availability of 23 horsepower. This is somewhat more than on the average commercial farms, but considerably less than is required for breeding farms to solve their specifically important problems, and it is little more than half as much than that of the leading breeding farms of the country, which have reached a level of average annual milk yields per cow of more than 5,000 kilograms on the farm as a whole.

Breeding farms of our republic are faced with the task of reaching these same goals. This is possible only if we create a breeding nucleus of the dairy herd with a productivity of 6,000 kilograms of milk per year and more. And to accomplish this we need additional investments in order to strengthen the production base. We also need a qualitatively better supply of special mixed feeds for the elite animals.

But this is still not the situation on the breeding farm. They themselves are called upon to do a great deal to strengthen the feed base. The trust has drawn up a comprehensive program for the development of feed production. It indicates specific measures which the farms must take in order to improve the science of farming, to increase the return from the meadows and pastures, more effectively apply advance practice of procuring and storing feeds according to progressive technologies, utilize them more efficiently, and reach a point where work in the fields fully serves the feed base. But there are some unsolved problems here too.

As long as ten years ago official instructions were given: to release breeding farms from the responsibility of procuring industrial crops, potatoes, vegetables and hay. They were to be granted the right to utilize land creatively and to improve the structure of the planted areas taking into account their specific needs as well as to evaluate their activity according to the achieved level of productivity and sales of breeding stock. But in fact these instructions were not carried out. As before, the plans for the breeding farms are made from above: the hectares of planted areas, the number of head of animals in the dairy herd. This is done by rayon management agencies with which the breeding farms have parallel jurisdiction. Many of them are given the same assignments as those of ordinary commercial farms. Plans for procurements of potatoes, hay, grass meal and flax were unjustifiably increased for the Nacha and Goncharovskiy breeding farms in Lyakhovichskiy Rayon, the Luch in Berezhovskiy, the Vedrich in Rechitskiy, the Lenino in Goretskiy, the Plamya in Sennenskiy Rayon and others. On the whole it has been planned for the farms of the trust to sell the state 38,000 tons of feed units of crop growing products this year, which is twice as much as in the last years of the Tenth Five-Year Plan.

The breeding farms have begun to sell much more of the feeds they produce themselves but the delivery to them of forage with the required calorie content is almost the same as before. And there has been a sharp reduction in the deliveries of certain kinds of feeds, for example special feeds for young pigs.

This situation cannot but be reflected in the affairs of the breeding farms whose herds contain highly productive animals which react sharply to a shortage of feed and therefore do not fully manifest their genetic potential. The attitude toward breeding farms locally, as to ordinary multibranch commercial farms, without taking into account their major work--selection, reduces their capacity and their influence on the overall level of development, and makes it impossible to sharply increase the sale of young breeding animals with the best production characteristics.

Breeding farms have ended up under dual jurisdiction. The republic trust manages the breeding work and the economic activity, but rayon agencies allot much of the money for production. In a number of cases the breeding farms are not properly understood. They do not allot the necessary quantity of fertilizers, spare parts or equipment, comparing them with other farms or else considering them "alien"--trust farms. Land reclamation is being done poorly on these farms. The local authorities of several rayons and oblasts frequently prohibit breeding farms from selling purebred young animals from beyond "their own" territory, which stands in contradiction to the plans for selection and breeding work.

This is explained to some degree by the fact that today great demands are placed on the rayons for the production of commercial products--meat, milk, grain, potatoes and flax. And it is as though breeding production is still beyond the field of vision: there is a plan for it but the demand for it is not great. All this complicates the work of the "heavy industry" of animal husbandry which is primarily the responsibility of the breeding farms.

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## AGRO-ECONOMICS AND ORGANIZATION

### OFFICIALS DESCRIBE ESTONIAN PYARNUSKIY RAPO OPERATIONS

#### Introductory Comment

Moscow TRUD in Russian 25 Jun 82 p 2

/Text/ The first rayon agricultural association in Estonia and the country was established in Vil'yandi in 1975. This experiment, which TRUD discussed more than once, fully justified itself. Its essence is that the efforts of all the partners of kolkhozes and sovkhoses were unified within the rayon framework. Workers of the Agricultural Equipment Association, reclamation specialists, agrochemists and other subdivisions together with farms began to strive for the fulfillment of long-term programs for the economic, social and cultural development of rural areas. Pyarnuskiy Rayon, the largest in the republic, followed the example of Vil'yandi. Today A. Soasepp, chairman of the Pyarnuskiy RAPO--rayon agroindustrial association--and Kh. Peerna, chairman of the Pyarnuskiy Rayon Committee of the Trade Union of Agricultural Workers, discuss the practical experience of collectives under the new conditions and the practical activity of the new rayon management link, which, in accordance with the decisions of the May (1982) Plenum of the CPSU Central Committee, is entrusted with a responsible role in the implementation of the food program.

#### Assistance to Lagging Farms

Moscow TRUD in Russian 25 Jun 82 p 2

/Article by A. Soasepp, chairman of the Pyarnuskiy Rayon Agroindustrial Association: "Utilizing Vil'yandi's Experience"/

/Text/ Our rayon agroindustrial association includes not only all the 13 kolkhozes and sovkhoses in the rayon, but also 14 enterprises and organizations servicing rural areas or processing their products. They are as follows: local subdivisions of the State Committee for Supply of Production Equipment for Agriculture and of the Interkolkhoz Construction Organization, meat, dairy, grain product and mixed feed combines, two forestry farms, two consumer cooperative offices, a large fishing kolkhoz and others. These subdivisions are doubly subordinated, that is, vertically, to their department and horizontally, to the RAPO council, which includes the managers of all farms and enterprises.

The advantages of coordinated actions of all those that are involved in food production are indisputable. For example, let us take the Tootsi Peat Processing

Association. Seemingly, what connection could it have with the RAPO? It has the most direct connection with it. In order to get to decomposed peat in swamps, it is necessary to remove the upper layer. This layer is suitable for bedding for livestock. Now we obtain it.

The RAPO proved its value in an especially effective manner in the solution of such an important social and economic problem as pulling lagging farms up to the level of advanced farms and equalizing the people's working and living conditions. It is well known how difficult it is to break away from the beaten track of a lag.

We could not tolerate such a situation. During the first year of work nine farms lagging in the basic indicators were uncovered. A plan for an improvement in work was developed for each of them. An increase in land fertility became the main condition for all. We did not count on additional mineral fertilizers, but on organic fertilizers. We set for ourselves the goal of annually applying no less than 15 tons of organic fertilizers per hectare, subsequently increasing their amount to 20 tons. The rayon staff, which united not only all the forces of kolkhozes and sovkhozes, but also of forestry farms, the Agricultural Equipment Association and peat workers, headed this work.

It was necessary to help farms to strengthen their economy and to increase the availability of machinery. The former rayon agricultural administration did not have the resources for this. The RAPO council now has them. They are our centralized funds for production development, for social and cultural measures and housing construction and for material incentives, as well as the mutual assistance or reserve fund. How are they formed? We utilize Vil'yandi's experience. Deductions into centralized funds are established with due regard for land fertility, provision with equipment, availability of labor reserves and so forth. Farms with better conditions pay a bigger share and with worse conditions, a smaller one, that is, from 6 to 2 rubles per hectare. In this way we obtained quite an impressive sum--½ million rubles. The council annually allocates the necessary sum for construction, purchase of equipment, material incentives for people and other urgent expenses to those that are still short of their own circulating capital.

I would like to cite the following examples. The Pyarnyye Sovkhoz remained unprofitable for a long time. To begin with, we strengthened the farm management. Yu. Simson, holder of the Order of Lenin, who is an experienced organizer, accepted it. A sizable loan was allocated to the sovkhoz and all-around assistance was given to it. By 1981 the collective completely caught up with the plan, having more than 300,000 rubles of profit. People began to work much better and with greater interest. This year the sovkhoz completed spring sowing more successfully than ever.

Now, instead of the previous "nine," we have four or five lagging farms, but they too are confidently picking up speed.

Along with the accelerated development of the economy a social and cultural program for the development of all these farms is implemented. For example, the situation on the Tystamaa Sovkhoz was very bad. The building of the house of culture almost tumbled down there, a school was abolished 10 years ago and hardly any housing was built. Under such conditions people left the sovkhoz. The association council helped the farm with equipment, fertilizers and feed and sent young

specialists to it. Measures were taken to restore the secondary school. Housing construction was begun. A general-purpose room, where young people can engage in sports, dance and see movies, is being planned.

In general, the RAPO pays special attention to the social development of rural areas and to an improvement in people's living conditions. Housing construction has greatly gained in scope everywhere. More than 1,000 apartments are to be built during the five-year plan. Four interfarm kindergartens operate and another four will be built before the end of the five-year plan.

We are often asked the following question: What is the effect of the establishment of the RAPO? Even last year, which was extremely difficult in terms of weather conditions, we sold 3 percent more meat and 2 percent more milk to the state than in 1980, which was more favorable. Naturally, however, not all the problems have been solved and not all the potentials have been utilized.

Let us take our centralized funds. From them we give bonuses not only to our farms, but also to industrial enterprises winning a victory in the rayon socialist competition, which form part of the RAPO. However, these enterprises still remain so-called functional members and do not deduct money to the centralized fund--departmental barriers and the fact that they belong to different departments and ministries do not permit this. It would seem that the standard statute on the RAPO should stipulate the amount of money deducted by processing enterprises from their profit to the association's funds.

#### New Organization of Socialist Competition

Moscow TRUD in Russian 25 Jun 82 p 2

/Article by Kh. Peerna, chairman of the Pyarnuskiy Rayon Committee of the Trade Union of Agricultural Workers, the Estonian SSR: "Partners Compete"/

/Text/ How does the rayon trade-union committee construct its work under the conditions of the rayon agroindustrial association? Is it easier or more difficult for us? I am often asked this. I will try to discuss what has changed in our activity.

I will begin perhaps from the organization of socialist competition. We were convinced that nothing should be devised when sitting at a desk. Effective, new forms and methods of work should be found in labor collectives by consulting people. We came to the conclusion that competition should be organized at "three levels," that is, on the scale of the rayon as a whole, in zones with similar conditions and on individual farms. I would like to explain that our rayon is divided into nine production zones, each of which includes three or four farms under the same natural conditions. When results are compared, it is now clearly seen who actually works better.

Competition is not reduced to a review of results alone. Much attention is paid to organizational work. A fight--in the literal sense of the word--for an adequate provision of feed is now in the forefront. Alas, this cool and dry spring has not brought us joy. The grass stand on meadows is low. Nevertheless, the procurement

of hay, haylage and grass meal is proceeding at full speed. A second grass harvest will be gathered and a satisfying wintering for livestock will be ensured, which means that milk yields and weight gains will be increased.

And what labor enthusiasm marked our spring sowing! During the past rainy fall it was not possible to fully plow the fall area everywhere. As bad luck would have it, winter was also unprecedentedly snowy in Estonia and the abundance of moisture in spring complicated plowing. Nevertheless, the sowing plan was fulfilled completely. Here is a characteristic example. On the Audru Sovkhoz 600 hectares had to be plowed additionally. Work was organized in three shifts. During the third shift all the specialists that had a driver's license, headed by Yu. Miglay, director of this sovkhoz, sat on the tractor.

Many social problems also began to be solved more successfully within the framework of the association. For example, the fulfillment of collective agreements in 1981 was discussed at a joint meeting of the RAPO council and the presidium of the rayon trade-union committee. The managers of the Tystamaa Sovkhoz--A. Til'ko, director, and L. Kangura, chairman of the trade-union committee--were seriously reprimanded for a careless attitude toward the implementation of measures directed toward the protection of the farm workers' health. A month later our mass production commission checked what had changed after the discussion. Preventive work produced results: Work time losses due to diseases were lowered and cases of injury also subsided.

Contacts with rayon committees of other sectorial trade unions have become qualitatively new in our activity. For example, we now direct the work of clubs and the organization of machine operators' leisure in the field together with the rayon committee of the trade union of cultural workers. Jointly with our colleagues from the rayon committee of the trade union of workers in state trade and consumer cooperatives we see to it that people are provided with hot food as best as possible during the busy harvesting season.

Heated arguments now flare up in connection with the following question: Is it not well worth establishing a coordinating trade-union body within the framework of the rayon agroindustrial association? Of course, it is necessary to coordinate the work of various trade unions involved in the RAPO activity. For example, members of various sectorial trade unions work in our association. However, is it necessary to establish a special council or commission for this? We believe that this is hardly advisable. Ultimately, the appearance of another managerial body will inevitably cause an increase in reporting, certificates and directives. But, as it is, we are up to our neck in paper work. We assume that in the rayon link this function should be entrusted to the biggest, leading trade union, that is, of agricultural workers, and its rayon committee should be strengthened with perhaps another unit for the coordination and recording of all our joint work.

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## AGRO-ECONOMICS AND ORGANIZATION

### EXPANSION OF INDUSTRIAL SUBSIDIARY ENTERPRISES CALLED FOR

Moscow IZVESTIYA in Russian 2 Jul 82 p 1

/Article: "An Important and Promising Undertaking"/

/Text/ To develop the subsidiary farms of enterprises and organizations in all areas where it is possible to do so. To satisfy to the maximum possible degree, by means of additional food resources, the public catering requirements of manual and office workers for meat, vegetables and potatoes. Such are the tasks that have been defined in the food program of the USSR for the period up to 1990 with regard to the creation and development of agricultural departments for enterprises and organizations.

In his report delivered before the May (1982) Plenum of the CC CPSU, Comrade L.I. Brezhnev focused attention on the great importance of this work. Each industrial enterprise and each organization capable of managing subsidiary farms must as a rule maintain them. And Leonid Il'ich emphasized that all associated problems must be resolved on an urgent, bold and industrious basis. This can immediately produce noticeable results.

Urgently, boldly and industriously -- such is the style of business-like enterprise that is already producing worthwhile results at many industrial enterprises. For example, the achievements of the Andreyevka subsidiary farm of the Zaporozh'ye Motorostroitel' Association are rather instructive. After having developed unsuitable land marked by gullies and ravines on a river sand-bar in the Pridneprov'ye region, laid out plantations, planted orchards and built farms, the motor builders are now producing milk, meat, eggs, vegetables fruit and berries here. Each worker at the subsidiary farm produces on the average 6,819 rubles worth of food products annually.

The experience of the motor builders is being disseminated extensively throughout Zaporozhskaya Oblast, where 124 subsidiary farms and fattening points are already in operation. The cooperation of enterprises in the creation of modern agricultural collectives on a share basis is being expanded. Thus, based upon the initiative displayed by a council of enterprise directors in the city of Berdyansk, a pork production complex containing the last word in equipment is being erected.

It is by no means an accident that many enterprises are developing this early-maturing branch of livestock production on their subsidiary farms. In addition to



the organization of highly intensive pig farming at industrial farms and complexes and more extensive use of all available potential, the food program of the USSR in particular calls for an increase in the production of pork on the subsidiary farms of enterprises and organizations.

The agricultural departments also possess great reserves for the production of other types of agricultural products. These reserves must be placed in operation in an energetic manner. And certainly this is a most important task in regions of new industrial development, where special importance is attached to satisfying more completely the population's requirements for meat, milk and vegetables, with these products being obtained at the production sites. This was pointed out by Comrade L.I. Brezhnev during his trip to Siberia and the Far East.

During the recent Plenum of the Krasnoyarskiy Kray CPSU Committee, which discussed the results of the May (1982) Plenum of the CC CPSU and the tasks of the kray party organization, as drawn from the report delivered by Comrade L.I. Brezhnev, it was mentioned in particular that in organizing subsidiary farms special importance is attached to the example set by large-scale associations and enterprises. Today the raised socialist obligations of the collectives of leading Krasnoyarsk enterprises -- the Machine Building Plant imeni V.I. Lenin and the Aluminum Plant imeni 50-Letiya VLKSM -- are being published in the newspaper. They have set high goals in the development of the agroindustrial complex and in intensifying patronage work in the rural areas. Certain other enterprises in Siberia and the Far East are solving this task with great scope and thoroughness. The enterprises of Glavtyumenneftegaz have built dozens of cow barns, calf houses and poultry houses.

The creation of subsidiary farms in regions of new development, where difficulties are encountered in deliveries of agricultural products, involves a different set of peculiarities. Here, whether or not those reserves which nobody, with the exception of these collectives is able to place in operation, will be placed at the service of the national economy is completely and entirely dependent upon thrifty enterprise. Meanwhile, use must be made of each patch of land on which it is possible to produce agricultural products. This will make it possible to have ample food available for every table.

The creation of subsidiary farms of industrial enterprises is an objective and natural process that is associated with the formation of and improvements in the agroindustrial complex. Moreover, it is based upon the need for making greater use of the available economic potential for increasing the production of food goods. Special importance is attached to developing this work based upon well thought out future plans.

In a considerable number of national economic branches, many industrial enterprises, by means of internal sources, funds and limits allocated for the principal activity and also based upon Gosbank loans, are strengthening the logistical base of their subsidiary agricultural departments and developing and making available for economic use lands which earlier did not provide the proper return. In the process, special attention is being given to the creation and strengthening of the internal feed base and to zealous use on the farms of the available food scraps.

In the establishment and development of both existing and new subsidiary farms of industrial enterprises, a great role is played by the local soviets of people's deputies. A great deal is dependent upon their providing energetic and practical

assistance for this important work. The effective solving of problems associated with the allocation of agricultural lands, maximum assistance in the selection and retention of skilled personnel in the agricultural departments and the development and implementation of an orderly system of measures for raising the efficiency of subsidiary production -- all of this requires constant concern and fixed attention on the part of the organs of government in the various areas. Specific efforts are required aimed at raising the culture of farming and increasing the productivity of the subsidiary farms and, where such work has not been carried out, low productivity livestock should be replaced by pedigree animals, the structure of the herd should be improved, proper use should be made of the land, material and monetary resources, labor expenditures for the production of goods should be lowered and so forth. These measures must invariably be reinforced by skilful organizational work and an efficient system of personal responsibility, so as to make it perfectly clear who, what and during which periods must be accomplished in order to realize the assigned goals.

The creation of agricultural departments for industrial enterprises in an important and long-range undertaking. They can and must make a worthy contribution towards the carrying out of the country's food program.

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## AGRO-ECONOMICS AND ORGANIZATION

### EXPANDING SUBSIDIARY INDUSTRIAL ENTERPRISES

#### Tatar ASSR Development

Moscow STROITEL'NAYA GAZETA in Russian 7 Apr 82 p 2

[Article by V. Dergunov, secretary of the Tatarskaya CPSU Obkom: "Urgan Agricultural Zone"]

[Text] "To increase the role of the republics, krays, oblasts and rayons for forming the unionwide food supply and also satisfying the population's demand for food products."

(From the Basic Directions for the Economic and Social Development of the USSR)

During the past decade the Tatar ASSR has been rapidly creating large production capacities in power engineering, machine building, chemistry, petrochemistry and the construction industry. With the beginning of the operation of the KamAZ the republic became one of the main bases for domestic automotive construction. On the whole the volume of the gross industrial output almost doubled.

As a result, the demographic structure changed. While at the beginning of the 1970's little more than half of the Tatar population lived in cities, now two-thirds of them do. A question has been raised for the republic party organization: how to solve the problem of providing food for the residents of the rapidly growing industrial centers. They have come to the conclusion that it is necessary to rely on intensive formation of agro-industrial zones around them. A special decree was adopted which was directed toward accelerated development of an agricultural zone adjacent to Naberezhnyye Chelny and Nizhnekamsk. It envisioned constructing large complexes for producing agricultural products on an industrial basis in eight regions around these cities.

It was necessary to assimilate about 600 million rubles' worth of capital investments in short periods of time. Of course rural organizations would not be capable of handling such a volume of work. Therefore in order to implement the earmarked program they enlisted contracting organizations of the USSR Ministry of Power and Electrification--the Kamgesenergostroy production association and the Tatenergostroy construction administration. In the former they organized the Sel'stroy construction organization with the rights of a specialized trust, and in the latter--specialized mobile mechanized columns.

The oblast party committee and the republic Council of Ministers have constantly directed party and soviet agencies toward mobilization of collectives of construction organizations and industrial enterprises for acceleration of the construction of the facilities. The Kamgesenergostroy association performed 250 million rubles' worth of work in the agricultural zone and the Tatenergostroy--almost 100 million rubles' worth. They put into operation poultry farms for 650,000 laying hens, fattening facilities for 3 million broilers and 70,000 hogs, several dozen complexes for producing milk and beef, a hothouse combine with an area of 30 hectares, an elevator, a mill and many other facilities.

And here is the result. In 1981 as compared to 1970, when the rural population of the agricultural zones of Naberezhnyye Chelny and Nizhnekamsk decreased by 20 percent, the production of milk and meat increased by one-third, vegetables--2.9-fold, and eggs--4.4-fold. In essence today the agricultural zones that were created simultaneously with these cities are capable of providing them with milk, potatoes and vegetables.

The same thing happened with the creation of agro-industrial zones around other industrial centers of the republic. Thus in the suburban zone of Kazan', which includes six rayons, during 1971-1980 more than 500 million rubles' worth of capital investments were used for the developed of the material and technical base of the kolkhozes and sovkhoses.

During the decade about one-third of a billion rubles were allotted for the formation of an agricultural complex in the six rayons of the republic's southeastern petroleum zone. Here too they have increased the production of milk, meat, eggs and vegetables while the rural population decreased.

Collectives of subdivisions of Glavstatstroy of the USSR Ministry of Industrial Construction, the Tatneftestroy association of the Ministry of Petroleum and Gas Construction, organizations of the USSR Ministry of Installation and Special Construction Work and the Ministry of Transportation Construction and also industrial enterprises of the cities participated actively in the construction of these facilities in the suburban zones.

Nor did rural contracting construction organizations of the republic--Tatkolkhozstroyob'yedineniye and the Tatsel'stroy administration--stand to the side. They doubled the volume of their work. And during the decade as a whole 2.7 billion rubles' worth of capital investments were assimilated in the rural areas and 2.3 billion rubles' worth of construction and installation work was completed. This is as much as was done under the Eighth Five-Year Plan in all branches of the republic's national economy.

But to construct new agricultural enterprises even on the most modern basis is only part of the project. It was necessary to supply them with personnel. In order to enlist and retain personnel, the rural area had to be rearranged on a new basis. Therefore housing and facilities for social purposes were constructed on a fairly large scale for the agricultural enterprises of the agro-industrial zone. Design institutes of the republic developed well-arranged buildings with outbuildings for the rural areas. The Naberezhnyye Chelny design office of Kamgesenergostroy is constructing buildings for rural areas from designs for urban buildings.

Well-arranged rural buildings with a total area of about a half million square meters as well as a large number of cultural and domestic facilities have been constructed in the agricultural zones. In the Naberezhnyye Chelny zone they have constructed an average of 25 apartments per farm, and in the Kazan' zone--22. And even under the Tenth Five-Year Plan the number of rural population of the Kazan' suburban zone not only did not decrease but even increased.

It is intended to continue in this direction in the future. In the KamAZ zone alone it is intended to construct about 200,000 square meters of housing under the Eleventh Five-Year Plan, and in the republic as a whole--more than a million square meters. This is approximately 1.5 times more than under the past five-year plan.

The creation of agro-industrial zones is not a simple process. It will be necessary to do even more work to establish farms in suburban zones and increase the production of food products. More and more industrial enterprises and urban construction organizations are beginning to create their own subsidiary farms which will reinforce the agricultural zones. There are now 55 of them. They have been assigned 37,000 hectares of land. Moreover, 57 fattening points have been created which use food wastes. The subsidiary farms now maintain about 40,000 animals. In 1981 they produced 6,500 tons of meat, 4,300 tons of milk and 10.6 million eggs.

The development of agricultural zones around industrial centers would take place considerably more intensively if their creation were planned ahead of time on the basis of comprehensive special-purpose programs. True, such a program was once developed for the KamAZ zone. But, in the first place, this is the only case, and, in the second place, it was financed from funds allotted for the republic as a whole.

It seems that it would be expedient when constructing large new industrial enterprises, expanding existing ones and creating new ones to envision special allotment of funds for the development of agricultural zones during the stage of the development of the technical and economic substantiation and to include them in the free estimated financial cost.

The development of agricultural zones should become an indispensable part of industrial complexes. The experience of the construction of the KamAZ showed that it is impossible to solve the problem of providing the city's population with food products unless a highly industrial suburban agricultural zone is created. And such zones should be created simultaneously with the creation of the industrial complex and, possibly, even before them.

#### Siberian Gas Pipeline Involvement

Moscow SOTSIALISTICHESKAYA INDUSTRIYA in Russian 5 Mar 82 p 2

[Text] The deputy minister of the Ministry of Construction for the Petroleum and Gas Industry, A. P. Vesel'yev, discussed its participation in carrying out the food program with the correspondent R. Yevseyeva.

Under the Eleventh Five-Year Plan we will have to start up a complex for raising and fattening 10,000 head of young animals and farms for large horned cattle in the Tatar ASSR and a dairy farm and a large butter and cheese combine in the Bashkir SSR. Especially important for land reclamation and irrigation is the production of metal pipes at our Al'met'yev pipe plant which has already delivered tens of thousands of kilometers of spiral seamed pipes to the regions of the nonchernozem zone and Central Asia. The Soyuztransprogress association is working on the creation of pipeline container transportation for shipping agricultural cargoes--silage, grain and fertilizers. The volume of construction and installation work performed under orders from agricultural organizations amounts to tens of millions of rubles.

We are devoting a great deal of attention to our own subsidiary farms. There are four sovkhozes and 14 large subsidiary farms in operation which raise large horned cattle, hogs, poultry and sheep. We have our own hothouses and greenhouses from which we deliver fresh vegetables and greens to the tables. The farms have been allotted 33,000 hectares of land and dozens of combines, tractors, tractor trailers and other equipment. Our main subsidiary farms are located in Siberia. By the end of the five-year plan in Tyumenskaya Oblast alone there should be farms for almost 7,000 head of large horned cattle and 9,000 hogs.

There are certified agronomists and zootechnicians working in several main construction boards, primarily in Tyumenskaya Oblast. They are carrying the matter out successfully. For example, the Voskhod Sovkhoz of Glavtyumenneftegazstroy during the first year of its existence sold 85,000 kilograms of meat, and last year it overfulfilled the plan by 30,000 kilograms.

Most of our farms engage in meat and dairy animal husbandry and also hog raising. Sheep facilities are being constructed in Central Asia and Kazakhstan. And in general the subsidiary farms are propagating chickens, geese and rabbits. In the regions of Central Asia we plan to create subsidiary farms with irrigation farming and specialization in the production of fruits, vegetables and melon crops.

Many farms of Western Siberia have hothouses. By the end of the five-year plan the area of the hothouse farming in the branch will increase many times over and amount to 0.5 square meters for each worker. I wish to emphasize especially that secondary energy resources from compressor stations are used to heat the hothouses. So the vegetables raised on our farms will be inexpensive.

We are also taking advantage of such a reserve as gardens near field villages. For example, workers of the Transcaucasian administration for the construction of pipelines have been living in Syzran' for several years now. They have cleared the nearest section of discarded lands, brought in fertile soil, constructed drainage and they are now obtaining fairly good yields of onions, green beans and potatoes. They have constructed storehouses and are storing up vegetables for the winter. In a word, much can be done if one does not simply sit with one's hands folded.

The main thing, in my view, is for each manager to have a profound understanding of his role and responsibility in carrying out the food program. Unfortunately, not all managers are displaying the proper concern for this yet. Frequently the board of the ministry drew the attention of the chiefs of Glavukrneftegazstroy (Comrade Kindrat), Glavyuzhtruboprovodstroy (Comrade Zhukov), Glavvostoktruboprovodstroy

(Comrade Mukhamedova), and Glavkomigazneftestroy (Comrade Miroshnichenko) to their inadmissable delay in the creation of subsidiary farms.

The ministry is working to make sure that the program for the development of subsidiary farms earmarked for the current five-year plan will be unconditionally fulfilled.

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## AGRO-ECONOMICS AND ORGANIZATION

### DISCUSSION OF LAND USE

Moscow KHOZYAYSTVO I PRAVO in Russian No 3, Mar 82 pp 60-63

[Article by E. Monkyavichyus, candidate of jurisprudence: "Additions Needed"]

[Text] The decree of the CPSU Central Committee and the USSR Council of Ministers, "On Additional Measures for Increasing the Production of Agricultural Products on Private Subsidiary Farms of the Citizens," applies to kolkhoz workers, other workers and employees, including workers of interfarm enterprises. But in practice, the implementation of this decree by workers of interfarm enterprises entails a number of legal problems. Ways of solving these are suggested in the present article.

In the Fundamentals of Land Legislation interfarm enterprises are not regarded as having the right to use land for agricultural purposes. Articles 26 and 27 contain only a general indication that sovkhozes and other state agricultural enterprises, organizations and institutions are allotted farmstead land in order to grant plots to sovkhoz workers and employees and other citizens who live in the rural locality.

In keeping with points 1 and 2 of the General Provisions Concerning Interfarm Enterprises (Organizations) in Agriculture, approved by decree of the USSR Council of Ministers of 19 April 1977, interfarm enterprises are included in that type of agricultural enterprise. But in terms of their legal status they cannot be considered state agricultural enterprises since they are created from various participating farms through voluntary pooling of part of their financial, material-technical and labor resources and they belong to them as common property. Nor can they be included with interkolkhoz enterprises or associations since they are the common property of the kolkhozes and the state in those cases when the kolkhozes share in their creation. The degree of collectivization of the property of interfarm enterprises is greater than that of kolkhozes, but less than that of state agricultural enterprises.

Interfarm enterprises are recognized as subjects of the law for the utilization of the land for agricultural purposes only by the land codexes of the Belorussian SSR (Article 63), the Latvian SSR (Article 61) and the Estonian SSR (Article 71), which establish the policy for their utilization of land as well. Interfarm enterprises are not mentioned in the land codexes of the other union republics concerning the right of workers to utilize land. Therefore they do not fully take advantage of

this right and sometimes this right is illegally limited or impinged upon. We shall show this from the example of the Lithuanian SSR.

In keeping with the decree of the Lithuanian SSR Council of Ministers of 5 April 1979 No. 125, workers of the republic's interfarm enterprises have the right to use farmstead plots (up to 0.50 hectares) and conduct subsidiary farming on them. But no corresponding supply of land was allotted to interfarm enterprises for this purpose. Farmstead plots are granted to them by the kolkhozes and sovkhoses--the proprietors of the interfarm enterprise whose workers live on their territory. Therefore they are allotted plots of various sizes, and sometimes simply arbitrarily. And some of these workers are generally deprived of the right to utilize land. Thus as of 1 January 1980, of the 106 workers of the Berzhay interfarm enterprise in Ionavskiy Rayon, 34 are using plots of up to 0.50 hectares, 17--up to 0.25 hectares, and 11--up to 0.15 hectares. Correspondingly, of the 90 workers of the Laysve interfarm enterprise in Kupishkskiy Rayon, two are utilizing plots of up to 0.60 hectares, 10--up to 0.50 hectares, and 49--up to 0.25 hectares. Moreover, at the interfarm enterprises that were investigated 374 workers were refused a larger farmstead plot (up to 0.50 hectares).

Kolkhozes, sovkhoses and other agricultural enterprises are frequently not motivated to allot farmstead plots to workers of interfarm enterprises for two reasons. In the first place, the land plots allotted to them are not excluded from the agricultural land belonging to the farms. In the country as a whole this amounts to thousands of hectares of agricultural land that are assigned to farms and are taken into account when planning the production of agricultural products even though they have actually been transferred over for secondary land utilization. In the second place, they have still not overcome the so-called "psychological barrier": parties sent to work at interfarm enterprises, even those who have retained their membership in the kolkhoz, are regarded as "aliens." And there is no motivation at all to grant farmstead plots to those workers of interfarm enterprises who do not live on the territory of the farms at all.

It seems that the solution to the problem consists in recognizing interfarm enterprises as subjects of the law concerning the utilization of land for agricultural purposes and to allot them a supply of farmstead land. This is even more necessary since the number of interfarm enterprises, and consequently workers employed in them, is constantly increasing. In 1970 there were 68,700 interfarm enterprises and organizations in the country, in 1975--94,100, and in 1980--up to 154,400.\* Moreover, at the end of 1980 there were more than 500 agro-industrial and agricultural associations in operation,\*\* which also include interfarm enterprises.

Therefore it would be expedient to append to the Fundamentals of Land Legislation Articles 26<sup>1</sup> and 27<sup>1</sup> concerning farmstead land of interfarm enterprises and also the right of their workers to use farmstead land. It is also necessary to make corresponding additions to the land codexes of the individual union republics.

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\*USSR Central Statistical Administration, "SSSR v tsifrakh v 1980" [The USSR in Figures in 1980, Moscow, "Finansy i statistika", 1981, p 130.

\*\*Ibid.

In order to conduct subsidiary farming on the allotted plots the workers of interfarm enterprises can have as personal property a residential building, farm structures, a small amount of agricultural supplies, productive cattle and poultry and other property. According to Article 13 of the USSR Constitution, interfarm enterprises are obliged to assist their workers in subsidiary farming but practice shows that the constitutional rights and responsibilities regarding them must be concretized and developed in the corresponding normative documents. Above all, the decree of the CPSU Central Committee and the USSR Council of Ministers of 19 June 1978, No. 518, "On Further Development of the Construction of Individual Residential Buildings and the Assignment of Personnel to Rural Areas," should apply to them. According to the decree, sovkhozes, other state agricultural enterprises, and also kolkhozes have the right to use their own funds to construct individual residential buildings and farm structures, receiving credit from the USSR Gosplan for these purposes, and to transfer them to the kolkhoz workers, other workers and employees. The decree envisions a number of preferential conditions for acquiring the right to property for residential buildings and repaying USSR Gosbank credits.

This decree does not apply to interfarm enterprises, even though in the Lithuanian SSR many of them are not capable of fully providing housing for their workers, and this has a negative effect on retaining skilled personnel.

It is also necessary to take advantage of every possibility of increasing the number of head of cattle and poultry on private subsidiary farms belonging to workers of interfarm enterprises. The USSR Ministry of Agriculture, the USSR Ministry of Procurements, the USSR Ministry of Finance and the USSR Central Statistical Administration on 12 March 1981 developed three standard agreements: for the purchase of milk, the purchase of cattle and poultry, and also an agreement for the raising of cattle and poultry on private subsidiary farms.

Workers of interfarm enterprises of the Lithuanian SSR are unwilling to conclude the aforementioned agreements and many of them completely refuse to since they do not have the conditions or capabilities of raising livestock and poultry that are granted to kolkhoz workers and other workers of state agricultural enterprises. In the first place, as was already noted, we have still not solved the problem of their right to utilize land. In the second place, not all farms on whose territory workers of the interfarm enterprises reside allot pastures for grazing cattle and haying, and if they do they do not allot enough of it. For example, workers of the Kuktishkyay interfarm enterprise in Utenskiy Rayon and the Laysve in Kupishkskiy Rayon were allotted 0.50 hectares for raising cattle, while workers of the Berzhay interfarm enterprise in Ionavskiy Rayon were allotted only 0.30-0.40 hectares. The pastures that are allotted are usually far away from the place of residence on unfertile or unsuitable lands. Under these conditions the majority of workers of interfarm enterprises refuse to keep livestock and the rest keep an insignificant quantity of it. Thus workers of the Berzhay interfarm enterprise in Ionavskiy Rayon, the Kuktishkyay in Utenskiy and the Laysve in Kupishkskiy Rayon, as a rule, keep one head of large horned cattle with the young and one or two hogs, which is hardly enough to satisfy their personal needs, not to mention sale to the state. And, in the third place, interfarm enterprises, with rare exceptions, do not render assistance to their workers in conducting private subsidiary farming.

This state of affairs must be rectified, and as soon as possible. To do this, it seems one should take the following organizational-legal measures. After solving the problem of allotting interfarm enterprises a supply of farmstead land and pastures it is necessary to grant them the same rights that kolkhoz and state agricultural enterprises have regarding the rendering of assistance to citizens in conducting private subsidiary farming. It would be expedient to augment the general provisions concerning the interfarm enterprise (organization) in agriculture with a norm having approximately the following content: "the interfarm enterprise (organization) renders assistance to its workers in conducting private subsidiary farming under the policy envisioned by existing legislation for workers of sovkhozes and kolkhozes." The specific form and volume of services for conducting private subsidiary farming and the sources for financing them can be envisioned in the plan for the economic and social development of the collective of the interfarm enterprise. In our opinion, these services should be financed from the fund for social and structural measures for housing construction. To do this the appropriate additions should be made to point 18, subpoint c of the general provisions concerning the interfarm enterprise and also the provisions concerning this fund.

The collective agreement, the rules for internal labor distribution and also other local documents of each interfarm enterprise should envision the specific conditions and policy for rendering assistance to workers in conducting private subsidiary farming, and the officials responsible for this and so forth. It seems that the implementation of the aforementioned measures would make it possible to create firm organizational and legal bases for successful development of private subsidiary farms belonging to workers of interfarm enterprises.

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## AGRO-ECONOMICS AND ORGANIZATION

### CONTRACTS WITH KOLKHOZES, SOVKHOZES

Moscow KHOZYAYSTVO I PRAVO in Russian No 4, Apr 82 pp 40-42

[Article by A. Koshelev, head specialist of the USSR Ministry of Agriculture, and V. Sidorov, division chief: "Mutual Advantage"]

[Text] Kolkhozes and sovkhoses have been and still are the basis of socialist agriculture. But we cannot neglect the possibilities of the private subsidiary farms of the citizens either. With a certain amount of assistance from soviet and agricultural agencies, they can produce and sell a significant quantity of meat, milk and other agricultural products.

The CPSU Central Committee and the USSR Council of Ministers in the decree of 8 January 1981, No. 27, "On Additional Measures for Increasing the Production of Agricultural Products on Private Subsidiary Farms of the Citizens," envisioned the creation of conditions that contribute to increasing the motivation of the citizens to maintain subsidiary farms, above all for raising cattle and poultry.

In order to improve the conditions for maintaining the private subsidiary farms of the citizens and to increase the motivation of kolkhozes, sovkhoses and other agricultural enterprises and also consumers' cooperative organizations to take fuller advantage of the possibilities of the farms of the citizens and increase the production and sales of farming and agricultural products, the decree envisions implementing a number of additional measures, in particular to allow sovkhoses and other state agricultural enterprises and to recommend to kolkhozes that they conclude strictly voluntary contracts with citizens living on their territory for raising and procuring cattle and poultry and procuring surplus milk. Citizens who are conscientiously participating in public production and maintaining large horned cattle, sheep and goats on private subsidiary farms are to be granted sections for haying and grazing of livestock for the longest possible period of time, and citizens who have concluded contracts with the farm for the production of animal husbandry products are to be allotted additional plots of land for raising feed crops.

The CPSU Central Committee and the USSR Council of Ministers have made the USSR Ministry of Agriculture and its local agencies responsible for the coordination of work for organizing private subsidiary farms of citizens and collective gardening and orchard raising as well as for rendering agrochemical, zootechnical, veterinary and other assistance to these farms.

In meeting the aforementioned requirements of the decree of the CPSU Central Committee and the USSR Council of Ministers, the USSR Ministry of Agriculture in conjunction with the USSR Ministry of Procurements, the USSR Ministry of Finance and the USSR Central Statistical Administration have developed and approved the following standard contracts: for raising on private subsidiary farms of citizens livestock and poultry belonging to kolkhozes, sovkhoses and other agricultural enterprises; for the procurement of cattle and poultry by kolkhozes, sovkhoses and other agricultural enterprises from private subsidiary farms of the citizens; for the procurement by the kolkhozes, sovkhoses and other agricultural enterprises of surplus milk from the private subsidiary farms of the citizens.

Kolkhozes, sovkhoses and other agricultural enterprises\* conclude these contracts on a strictly voluntary basis with kolkhoz workers, other workers, employees and other citizens who live on their territory and are conscientiously participating in public production, and also with pensioners.

Depending on the specific conditions and capabilities of the parties to the contract, one or several of the aforementioned contracts can be concluded.

As a rule, contracts with citizens must be concluded before 1 January of the corresponding year. To do this the farm must promptly send its authorized representative who explains the possibilities of each farm of the citizens and determines with mutual agreement the necessary list of services the farm will perform.

Before concluding the agreement the farm must familiarize the citizens who are concluding the agreements with the rules and conditions that regulate the receipt and evaluation of the products that are purchased and the accounts for them.

The contract contains general information concerning the parties and sections that include the commitments of the parties. Thus the standard contract for raising cattle and poultry belonging to the farms on the private subsidiary farms of the citizens envision transferring young cattle and poultry to the citizens for raising. It also indicates the kind of cattle and poultry, their age, the times of transfer, the number of head, the live weight of one head and the overall weight of all of the animals that are transferred. Cattle and poultry that are transferred to citizens for raising remain the property of the given farm.

The farm sells the citizens feeds for raising cattle and poultry. The contract indicates their kind, date of sale, quantity, price per one kilogram and overall value. Grain produced by the farm itself is sold to the citizens at state procurement prices, other feeds--at their planned production cost, and purchased feeds--at the prices at which they were acquired, including expenditures on delivery to the farm.

The farms receive cattle and poultry from the citizens in the quantity and on the dates established with the agreement of the parties and pay for them within ten days. The payment for each kilogram of live weight minus deductions for what is contained in the gastroenterotract and the weight of the animals at delivery, is made at prices agreed upon, but not higher than the established state procurement prices for cattle and poultry of the corresponding condition.

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\*Henceforth--farm

The farms grant the citizens (if necessary) an additional plot of land for raising feed crops for the time period during which the contract is in effect. Moreover, they allot kolkhoz workers, other workers, employees and other citizens who are voluntarily working in public production and to pensioners who are maintaining large horned cattle, sheep and goats on private subsidiary farms plots for haying and grazing of livestock for the longest possible period of time, and they render them assistance in increasing the productivity of this land.

When creating the proper conditions for the citizens to raise cattle and poultry, if necessary, the farm renders them assistance in constructing and equipping premises for maintaining cattle and poultry, cultivating the plot of land, and procuring and shipping feeds. The construction materials, horses and other means of transportation are allotted at a particular price. The farm's own specialists provide zooveterinary service for the cattle and poultry that are maintained on the private subsidiary farms of the citizens.

At the request of the citizens, the farms can also use USSR Gosbank credit to give them a monetary advance for acquiring supplies, materials and means of minor mechanization in the amount of up to 50 percent of the sum of the contract.

In cases involving insurance, that is, upon the death of the cattle or poultry being raised on private subsidiary farms which is not the fault of the citizens, the farms pay these citizens insurance reimbursement obtained from the USSR state insurance agencies in the proportion corresponding to the amount of weight the livestock has gained. But if the death of the cattle or poultry is the fault of the citizens, the latter are obliged to reimburse the farm for the value of delivered live weight at state procurement prices.

Citizens who have concluded contracts for raising cattle and poultry transfer them to the farm in the quantity and on the date determined by the agreement of the parties. The quality of the cattle and poultry is also determined by such an agreement.

If it becomes necessary to slaughter the cattle and poultry that are being raised on private subsidiary farms, the products of the slaughter that are suitable for food purposes are sold by the citizens to the farm which pays for the weight gain that was obtained according to the prices agreed upon in these cases.

It should be noted that if it is necessary to slaughter the cattle and poultry, just as when they die, this should be certified by a document drawn up with the participation of farm specialists and the state veterinary service.

The contract for the procurement of cattle and poultry by the farms from the citizens has its own peculiarities. This consists in that the cattle and poultry being raised under the contract for the farm belong to the citizens, who sell it to the farm in the quantity (live weight of one head) and at the times established by the agreement of the parties. The quality of the cattle and poultry is also established by the agreement of the parties.



The obligations of the farms that are contributing to the citizens' fulfillment of the contract for the procurement of cattle and poultry--the sale of feeds, the procurement and payment for the cattle and poultry, the allotment of an additional plot of land, hayfields and pastures, the rendering of services for payment, and the granting of monetary advances--are carried out under an analogous policy and under conditions established by the standard contract for raising cattle and poultry on private subsidiary farms.

The standard agreement for the farms' purchase of surplus milk from private subsidiary farms envisions the obligations of the citizens to sell milk whose quality meets the requirements placed on milk in state procurements. It is sold with a breakdown for the various quarters of the year in the volume agreed upon by the parties.

The farms that procure surplus milk provide for its prompt receipt. All services and assistance rendered by the farm to the citizen according to the contract--namely the sale of feeds, the allotment of haying and pasture plots, the procurement and shipment of feeds, the cultivation of the farmstead plot and the payment for the milk that is procured--are provided under the policy and conditions established by the standard contract for raising and procuring cattle and poultry on private subsidiary farms of citizens.

The contracts go into effect at the time the parties sign them.

Based on existing civil legislation, all standard contracts stipulate the liability when the parties fail to fulfill or improperly fulfill their commitments.

In effect here, in particular, is the rule established by Article 36 of the Fundamentals of Civil Legislation: in the event that the party fails to fulfill or improperly fulfills his commitments he is obligated to reimburse the creditor for losses that were caused by this. By losses this means expenditures made by the creditor--lost or damage to his property and income he has failed to receive and would have received if the party had fulfilled his obligation conscientiously.

During the course of the fulfillment of contracts that are concluded disputes can arise regarding the quality of animal husbandry products that are procured by the kolkhozes and sovkhoses from private subsidiary farms of citizens. Disputes of this kind must be resolved under the policy established for examining similar disputes among kolkhozes, sovkhoses and procurement organizations, particularly by the state inspectorate for the procurement and quality of agricultural products.

The creation of material and moral conditions that increase the motivation of the citizens to raise cattle and poultry on private subsidiary farms is one of the important and primary tasks of the kolkhozes and sovkhoses. Carrying out this task will contribute to increasing the production of animal husbandry products on the private farms of the citizens.

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## TILLING AND CROPPING TECHNOLOGY

### MINIMAL TILLAGE IN MIDDLE VOLGA REGION

Saratov STEPNYYE PROSTORY in Russian No 2, Feb 82 pp 23-24

[Article by V. A. Korchagin, chief of the crop rotation laboratory of the Kuybyshev Scientific Research Institute of Agriculture, doctor of agricultural sciences: "Subsoil Cultivation of Soil in Mid-Volga Area"]

[Text] The zone of southern chernozem and dark chestnut soils in Kuybyshevskaya Oblast includes about 1 million hectares of arable land. It is located in the most arid part of the oblast, with an annual quantity of precipitation of 280-320 millimeters and a hydrothermal coefficient of 0.6-0.7. These soils are distinguished by decreased natural fertility and they are frequently distributed among solonets and solonchak soils. Large areas of arable land are subjected to water and wind erosion.

Droughts cause the most damage to the crops. The considerable shortage of the yield of crops in dry years is related not only to the shortage of precipitation, but also unproductive losses of it. With the generally accepted technology for cultivation (plowing) one loses from the soil and fails to use in the formation of the crop an average of up to 50-60 percent of the precipitation of the autumn and winter period. A large quantity of moisture evaporates unproductively in the spring and summer period.

Many years of observations of the Kuybyshev Scientific Research Institute of Agriculture have shown that favorable water conditions can be arranged in this zone when the soil is cultivated with subsoil cultivator-deep looseners. By retaining the stubble more snow is accumulated, and packing and mulching the soil with stubble residuals reduces the evaporation of moisture during the autumn and early spring.

According to the institute's data from 12 years, with subsoil cultivation as compared to plowing the supplies of productive moisture in the half-meter layer increase by 24 millimeters before winter and by 47 millimeters in the spring. The advantages of this kind of cultivation are especially significant during years with inadequate winter precipitation: in the spring the moisture penetrated more deeply into the soil than it does with plowing and it is more uniformly distributed throughout the entire active root layer. The proportion of productive (easily assimilated by the plants) moisture increases, and the soil conditions that are formed in the crop rotation include more stable supplies of moisture throughout the

entire growing period. Favorable conditions for early snow retention increase even more the role of subsoil cultivation as a means of additional accumulation of moisture in the steppe zone.

In the institute's experiments on southern chernozem soil (Mayskiy Sovkhoz) the average additional yields of spring wheat from subsoil cultivation when it was planted after various crops (rye, millet, wheat) which left a considerable amount of stubble on the fields, amounted to 1.7-2 quintals per hectare. In critically dry years the yields increased by 3.5 quintals per hectare. The greatest additional yields were obtained in the years when the dry weather in July-September was combined with little snow in the winter and a spring drought. The yield of millet during dry years increased by 4-4.2 quintals per hectare.

In critically dry years the grain production from each hectare of the crop rotation area increased by 25 percent with subsoil cultivation. With this same cultivation for early grain crops the gross output per one hectare of arable land increased by 20 percent and the net income--by 30-33 percent.

The essential differences in the natural conditions of the zone as compared to regions of northern Kazakhstan and western Siberia (early spring planting time, relatively lengthy postharvest period, the existence of winter crops, little wind erosion and so forth) have made it necessary to refine the technology of subsoil cultivation.

As a result of research it has been established that on soils with heavy texture in the zone it is advantageous to use a system of cultivation with deep loosening with subsoil cultivators (see Table).

Table. Effects of Depth of Subsoil Cultivation of Soil on Yield of Agricultural Crops (average for 1971-1979), quintals per hectare

| Crops                         | Constant cultivation with subsoil cultivator to 25-27 cm | Constant cultivation with subsoil cultivator to 12-14 cm | Rye and barley after fallow--without fall cultivation; on other fields, shallow cultivation with subsoil cultivator |
|-------------------------------|--|--|---|
| Winter rye after clean fallow | 32.0   | 31.6   | 30.8  |
| Spring wheat                  | 16.6   | 15.5   | 15.4  |
| Corn (green mass)             | 212  | 204  | 201   |
| Spring wheat                  | 17.8   | 17.7   | 17.4  |
| Barley                        | 20.2   | 18.5   | 16.9  |

The yield of barley decreased during the course of six years with shallow cultivation by 1.3-4.0 quintals per hectare, and without fall cultivation--by 1.4-7.1 quintals per hectare.

According to experiments conducted on the Rodina Kolkhoz in Neftegorskiy Rayon, the yield of spring wheat with shallow subsoil cultivation decreased by 1.2 quintals per hectare and on areas with no cultivation, by 3.5 quintals per hectare; the yield of sunflower seeds decreased by 3.4 and 4.8 quintals per hectare, respectively. The yield of winter crops after clean fallow cultivated with subsoil cultivators to 25 and 12 centimeters turned out to be the same.

On relatively clear land and also when herbicides have been applied extensively to fight against weeds it is expedient to introduce systems of cultivation with differentiated depths of loosening for individual fields. Then deep loosening is conducted for row crops and repeated plantings of spring spike grains, and shallow loosening when preparing fallow for winter crops and fall fallow for spring grain crops after winter and row crops.

Differentiation of the depths of loosening of the soil and the crop rotation on cultivated land will make it possible to reduce expenditures on autumn cultivation 1.5-2-fold and also to reduce the time periods for carrying it out.

When introducing systems of cultivation with elements of minimalization special attention should be devoted to the development of the most effective devices for fighting against weeds and extensive application of systems of fertilizers since when changing over to shallow cultivation it is possible that the planted areas will become weedier and the nutritional conditions of the soil will deteriorate.

In the steppe zone of the Volga region, with systematic subsoil cultivation of the soil there is increased danger of additional weediness of the planted areas in damp years, the rates of nitrification decrease during the spring period and there is a greater differentiation of the plowed layer in terms of fertility than there is with plowing. Important devices directed toward eliminating these shortcomings are extensive utilization of herbicides, autumn scuffling of the stubble with subsoil cultivators and other means of fighting against weeds, periodic turning over of the plowed layer in the crop rotation and the application of nitrogen fertilizers.

In order to prevent weediness of the fields, subsoil cultivation should be applied in field crop rotations with clean fallow, extensively utilizing herbicides to fight against young and older root sucking weeds in areas planted in row crops and grain crops. During years with wet weather during the summer and autumn, in order to fight against weeds it is effective to have additional postharvest autumn cultivation of the soil with subsoil cultivators to a depth of 10-12 centimeters instead of scuffling the stubble. On weedy land it is recommended that the introduction of subsoil cultivation begin with fallow fields.

With grain and row crop crop rotations it is most expedient to use the subsoil cultivator during basic cultivation of bare fallow and fall fallow after winter crops and millet. For row crops it is most expedient (on land that is not damaged by wind erosion) to plow. Areas planted in corn and sunflowers become more weedy with subsoil cultivation than with plowing. Their yield is also reduced with this kind of cultivation, especially during years with a great deal of precipitation. In experiments of the Kuybyshev Scientific Research Institute of Agriculture on an average for ten years (1971-1980) the productivity of the green mass of corn amounted to 228 quintals per hectare with plowing and 194 with subsoil cultivation.

During the period of assimilation of the crop rotations plowing should be done, and on fields with a great number of root sucking weeds, it should be done with the application of fertilizer and when preparing clean fallow.

On light textured soils that have been subjected to wind erosion subsoil cultivation is done on all of the fields of the crop rotation.

Important elements of the technology directed toward effective utilization of subsoil cultivation are intensive snow retention with snowplows, making the snow banks close together (3-4 meters), and the application of nitrogen fertilizers to grain crops (in doses of 40-45 kilograms per hectare, weighted dose) in the autumn or compound fertilizers in the rows during planting.

The effectiveness of nitrogen fertilizers is greater with subsoil cultivation than with plowing. Thus on an average for five years (1976-1980) the additional yield of barley from the application of nitrogen fertilizers ( $N_{45}$ ) in the autumn was 2.9 quintals per hectare with subsoil cultivation and 1.7 quintals per hectare with plowing.

In years with a relatively favorable amount of precipitation the additional yields of spring crops from the application of nitrogen fertilizers with subsoil cultivation reaches 6-11 quintals per hectare, which is explained by the slower rates of accumulation of nitrates during the spring period. This is especially marked in years with good moisture.

Subsoil cultivation of the soil is most effective in the steppe region of the Volga area when it is combined with the application of fertilizers (mainly nitrogen fertilizers), the use of herbicides and snow retention. According to data of the Kuybyshev Scientific Research Institute of Agriculture, the application of herbicides after subsoil cultivation increased the yield of spring grain crops by 2.2 quintals per hectare, a combination of herbicides and fertilizers--by 3.7 quintals by hectare, and a combination of herbicides, fertilizers and snow retention--by 5.3 quintals per hectare.

A mandatory agrotechnical measure with stubble on the fields is to seal in the moisture. This increases the productivity of early grain crops by 1.3-1.5 quintals per hectare. The moisture is sealed in during the spring the BIG-3 or LDG-15I harrows. For preplanting cultivation of the soil for spring crops one uses KPE-3.8 cultivators. Grain crops are planted with SZS-2.1 seeders. When the spring weather is dry grain crops should be planted without cultivation with SZS-2.1 seeders and cultivating working parts, with simultaneous application of compound (nitrogen and phosphorus) and phosphorus fertilizers to the rows.

The cultivation of fall fallow with subsoil cultivators is done with KPE-3.8 machines and the planting is done with SZS-2.1 seeders. When spring weather is dry it is possible to use for planting SZS-2.1 seeders that are equipped with plow shares that have arrow shaped blades, without preplanting cultivation. On an average for three years the yield of spring wheat when planted with SZS-2.1 seeders without preliminary cultivation amounted to 15.2 quintals per hectare while the yield of the control fields was 14.8 quintals per hectare.

The optimal norms for planting spring wheat when utilizing SZS-2.1 seeders turned out to be close to those for planting with SZ-3.6 seeders with mouldboard fall plowing (4 million germinative seeds per one hectare). It is expedient to reduce the planting norm when using SZS-2.1 seeders for areas planted in spring grains that are distinguished by increased bushiness (barley, oats).

The system of machines of the subsoil complex turned out to be effective in the arid regions of the Volga area when preparing clean fallow as well. The best results are obtained with layer-surface cultivations of bare fallow. The first 2-3 cultivations are done to a depth of 10-12 centimeters with KPSH-9 or KPZ-3.8 subsoil cultivators, and subsequent cultivations--to a depth of 6-8 centimeters with KPG-4 or rotary cultivators. In the institute's experiments the productivity of winter rye with spring and summer cultivation of bare fallow with subsoil cultivators amounted to 26 quintals per hectare, and with plowshare scufflers with the mouldboards removed in combination with KPG-4 cultivators--25 quintals per hectare. But the productivity of plowshare scufflers is 1.5-2 times less than that of subsoil cultivators for cultivating fallow. Plowshare scufflers also cause greater drying of the upper layer of the soil than do subsoil cultivators.

The system of tending bare fallow which consists of cultivation with subsoil cultivators in conjunction with rotary cultivators increased the yield of winter rye by 3.6-3.9 quintals per hectare as compared to the control group.

The great effectiveness of the proposed technology of subsoil cultivation is confirmed by practice. Thus on the Rodina Kolkhoz in Neftegorskiy Rayon subsoil cultivation has been carried out since 1974 on an area of 10,000-11,000 hectares. Its application in combination with other progressive devices of agrotechnology made it possible to increase the productivity of grain crops by 3.8 quintals per hectare under the Tenth Five-Year Plan as compared to the Ninth and to increase grain production by 44 percent. The productivity of grain crops on the farm is 2-2.5 quintals per hectare greater than the average for the rayon. The kolkhoz has assimilated 7-10-field grain and row crop rotations. The adopted system of cultivation envisions plowing to 28-30 centimeters for row crops in the crop rotation (sunflowers, corn) and subsoil cultivation to 22-25 centimeters for the other crops. Subsoil cultivation is also done on fields that have been cleared after harvesting sunflowers. In the spring these areas are planted in barley.

For preplanting cultivation on fields with stubble one uses BIG-3 harrows, and when there is not much stubble--ordinary tooth harrows, KPE-3.8 cultivators and disk scufflers. The planting is done with SZS-2.1 seeders with simultaneous application of fertilizers. Each year more than 60 percent of the area planted in grain crops is treated with herbicides.

Good results from the introduction of subsoil cultivation have also been obtained by the Stepnoy mayak Kolkhoz in Bol'shechernigovskiy Rayon, the Kolkhoz imeni Furmanov and the Rossiya Kolkhoz in Bol'sheglushitskiy Rayon and other farms of the steppe zone of the oblast.

For southern and dark chestnut soils of the mid-Volga area mass changeover to the system of subsoil cultivation using technology that has been perfected for local

conditions will make it possible to increase the stability of the grain yields during dry years and will protect the soil from damage by water and wind erosion.

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NEED, PROSPECTS FOR CROPPING SYSTEM ADAPTED FOR BASHKIRIA

Moscow SEL'SKOYE KHOZYAYSTVO ROSSII in Russian No 4, Apr 82 pp 24-25

[Article by N. Bakhtizin, director of the Bashkir Scientific Research Institute of Agriculture, professor, and I. Yukhin, laboratory chief, candidate of agricultural sciences: "The Zonal System of Farming: Reality and Prospects"]

[Text] The decisions of the 26th Party Congress discuss the immense significance that is presently being attached to agricultural science and advanced practice. In particular, a large role is assigned to the development of zonal scientifically substantiated systems of farming which provide for more stable results in the production of crop growing and animal husbandry products. Our institute is engaged in this problem.

The republic has been separated into six basic soil and climate zones. Taking into account the actual conditions, the corresponding systems of farming have been developed and are being proved. The introduction of recommendations related to these has had an effect on the development of agricultural production. During the years of the Tenth Five-Year Plan the productivity of grain crops increased by 4.5 quintals per hectare. The average annual gross output increased by 25 percent, including grain--39 percent, sugar beets--45 percent, and sunflower seeds--48 percent. There has been a marked increase in the yields of potatoes, vegetables and feed crops and the productivity of animal husbandry has increased.

The results of what has been introduced are most appreciable at our experimental farms. There are eight of them and they are located in all zones of the republic, where both the soil and the climatic conditions vary.

The average productivity of grain crops on experimental production farms on an area of more than 20,000 hectares during the past five years was 10.4-19.7 quintals greater than on ordinary farms located in the same zone. This productivity amounted to 29 quintals per hectare, as compared to 17.3 in the republic as a whole. Moreover the yield on experimental farms was more stable. Zonal systems of farming withstood testing even in the arid year of 1981. The experimental production farms received an average of 23 quintals of grain per hectare. And certain farms harvested even 28-29 quintals (the average for the republic was 10.3 quintals).

Last year our institute in conjunction with the Bashkir Agricultural Institute and other scientific institutions and agricultural agencies of the republic continued to improve the systems of farming: they were augmented with the latest developments for each of the six zones. The recommendations of the scientists were discussed locally, at a republic agronomic conference and at the Presidium of the All-Russian Division of VASKhNIL and were approved by the Council of Ministers of Bashkiria.

Of course it is possible to utilize the recommendations successfully only if the kolkhozes and sovkhoses are informed of them. Therefore scientific workers have now been assigned to each rayon and rayon commissions have been created for rendering assistance to the farms in developing their own systems of farming. In a word the word introduction is being used in the complete sense.

In the proposed zonal systems we have tried to include everything new that has been achieved recently by our institute and leading farms. We have taken into account the real possibilities, particularly the resources allotted in the republic for the next few years. Special attention was devoted to further improving the structure of the areas planted in grain and feed crops. We envisioned expansion of the areas planted in rye, peas, and grain forage crops, and concentration of the areas planted in wheat of strong and durum strains, and also buckwheat in rayons where the soil and climate conditions are most favorable for them. We made scientifically substantiated recommendations concerning the proportion of clean fallow (depending on the zone and the rayon, it ranges from 7 to 16 percent), and the application of crop rotations with short rotations as well as increased effectiveness of fertilizers. The introduction of zonal soil protection complexes, industrial technologies and a method of programmed raising of crops on irrigated land has been envisioned.

In the zonal systems of farming that have been developed the crop rotation is a unique skeleton which holds the other organizational and agronomic measures. Grain and row crop crop rotations are the most effective for the steppe zones of the republic. A comparative study of crop rotations with various amounts of clean fallow in them was conducted by the Kazangulovskoye experimental production farm showed that if a nine-field fallow-row crop crop rotation contained 10.6 percent fallow the average productivity of the grain crops during the past five years was 26.9 quintals per hectare while if fallow occupied 13.1 percent of a seven-field crop rotation it was 29.5 quintals per hectare.

An important part of the system of farming that has been developed is an efficient structure of the planted areas which is differentiated for the various zones. In the rayons of the northern and northeastern forest steppe and the mountain steppe zone, because of the shortage of heat and early autumn frosts, spring wheat frequently does not ripen and produces poor yields with grain of poor quality. Therefore in these places it is intended to increase the areas planted in barley, which at the Mechetlinskoye experimental production farm, located in the northeastern forest steppe, during the past five years has surpassed spring wheat in productivity by 9.5 quintals.

On the Kolkhoz imeni Kalinin in Kinginskiy Rayon--one of the leading farms of the northeastern forest steppe--as a result of expansion of the areas planted in grain, forage crops during the past ten years from 15.9 to 24.5 percent and the introduction of other elements of the system of farming, the productivity of grain crops

increased from 15 to 27 quintals. Profit from crop growing also increased. While under the Ninth Five-Year Plan it was 147,300 rubles, under the Tenth it reached 264,400 rubles.

The indicators of the Kolkhoz imeni Kuybyshev in Ilishevskiy Rayon are a clear example of effective assimilation of the system of farming (see table). A creative approach to the work with the land made it possible to raise productivity by 9.6 quintals per hectare.

Table.

|  | 1971-75 | 1976-80 |
|--|---------|---------|
| Area of arable land, hectares  | 3,562   | 3,643   |
| Clean fallow, hectares   | 77      | 207     |
| Grain and pulse crops, hectares  | 2,300   | 2,200   |
| including winter crops   | 350     | 474     |
| Grain forage crops, hectares   | 280     | 394     |
| Mineral fertilizers applied per<br>1 hectare of arable land, kilo-<br>grams, weighted dose | 189.3   | 159.4   |
| Productivity of grain crops,<br>quintals per hectare                                       | 23.5    | 33.1    |
| Gross output of crop growing per<br>100 hectares of arable land,<br>thousands of rubles    | 11.4    | 17.6    |
| Profit obtained from crop growing,<br>thousands of rubles                                  | 114     | 269     |
| Level of profitability of crop<br>growing, percent   | 71.8    | 116.4   |

Fairly good results were also achieved in other zones of the republic. On the Kolkhoz imeni Il'ich in Kaltasinskiy Rayon (northern forest steppe) the introduction of our recommendations made it possible to increase the productivity of grain crops from 13.8 quintals to 20.2. The area planted in winter crops was expanded: under the Ninth Five-Year Plan it amounted to 11.8 percent and under the Tenth-- 39.7 percent. The areas planted in grain forage crops also increased (from 8.9 to 24.9 percent). In combination with other elements of the system of farming, this made it possible to raise the level of profitability of crop growing from 47 to 67 percent.

On the Kolkhoz imeni Salavat in Sterlitamakskiy Rayon (Ural steppe), because of successful assimilation of the recommended zonal system, the productivity of grain crops increased from 20.8 to 33.3 quintals per hectare. In the structure of the planted areas the amount of grain crops increased from 58.4 to 60.7 percent, including grain forage crops from 5 to 14.9 percent.

Taking into account zonal conditions, scientists of our institute have developed soil protection technology. It has undergone testing and is now being effectively introduced into production. In conjunction with other scientific institutions we

are also preparing a general schema for anti-erosion measures in Bashkiria. It envisions soil protection organization of the territory and cultivation of the soil with retention of postharvest residuals in the crop rotations with clean fallow, and strip location of fallow between planted areas and contour distribution of crops on sloping land are planned. In rayons where there is mainly water erosion, we are recommending that the soil be cultivated along the horizontal, making hills and broken furrows.

The land of each zone requires its own approach. For example, in the Transural steppe rayons, which have severe wind erosion, subsoil tilling of the soil is especially effective. And by the end of the current five-year plan more than 163,000 hectares in this zone will be cultivated by the subsoil method.

On the basis of the zonal system of farming scientists of our institute, in close cooperation with the leading farms, have developed industrial technology for raising sugar beets. This technology envisions the application of small planting norms, special herbicides and mechanized methods of caring for the plants. We have also developed industrial technologies for cultivating sunflowers, potatoes and corn.

On the leading farms of the republic the introduction of industrial methods have helped to obtain larger yields and to reduce labor expenditures significantly. On the Kolkhoz imeni Frunze in Karmaskalinskiy Rayon the yield of sugar beets from an area of 545 hectares reached 351 quintals per hectare in 1980. Labor expenditures per quintal amounted to 1.17 man-hours. On the Kommuna Kolkhoz in Buzdyakskiy Rayon they received 175 quintals per hectare from an area of 370 hectares with expenditures of 0.9 man-hours for each. Approximately the same indicators were achieved by workers of the Pugachevskiy Sovkhoz in Fedorovskiy Rayon, the Put'Lenina Kolkhoz in Aurgazinskiy Rayon and the Rossiya Kolkhoz in Blagovarskiy Rayon.

And now about fertilizers. With scientifically substantiated use of fertilizers the grain yield increases by an average of 2.5-3 quintals per hectare, sugar beets--by 40-60 quintals, and potatoes--by 30-40 quintals. Moreover, fertilizers increase the resistance of agricultural crops to drought, reduce the consumption of water per unit of output and improve the quality of the yield.

Unfortunately, the demand for fertilizers is still not being fully satisfied. Therefore when developing a system of farming we envisioned methods for more efficient utilization of mineral fertilizers. For example, in planting the application of fertilizers to the rows plays an exceptionally large role. According to data of the Bashkir Scientific Research Institute of Agriculture this makes it possible to harvest no less than 2-4 additional quintals of grain per hectare.

Liming acid soils, increasing the quantity of fertilizers that are applied and expanding the areas planted in legumes--these measures contribute to increasing the fertility of the soil. The zonal systems envision increasing the limed area to 250,000 hectares by 1985 (in 1980 lime was applied to 114,000 hectares). The doses of organic fertilizers will increase: they will amount to 6-7 tons per hectare of arable land. This will make it possible as early as the end of the current five-year plan to achieve a balance of nutritive substances in the soil without any shortages.

By 1985 the procurements of grain in the republic will have increased by 13.5 percent, sugar beets--by 41 percent, sunflowers--by 33 percent, potatoes--by 39 percent, and vegetables--by 28 percent. In order to fulfill the earmarked plans it will be necessary to obtain from each hectare 22 quintals of grain, 210-225 quintals of sugar beets, 125-140 quintals of potatoes, 12-14 quintals of sunflower seeds and 150-170 quintals of vegetables. This program requires that agricultural workers effectively utilize land, technical equipment and fertilizers and that they introduce scientific developments persistently everywhere.

The zonal systems of farming envision intensification of the field and meadow-pasture feed production. Feed crops now occupy 1.2 million hectares on the farms of Bashkiria or 26 percent of the plowed land. The main role in increasing the production of feeds from plowed land is assigned to increasing the productivity of grain forage and feed crops. Under the Eleventh Five-Year Plan the productivity of each hectare of arable land on the farms of the republic should be increased to 20-22 quintals of feed units.

To do this it is recommended that they improve the structure of the feed crops and expand the area planted in highly productive varieties and strains. There should be a considerable increase in the areas planted in alfalfa, clover, sweetclover, sainfoin, Sudan grass, Italian millet, feed peas, wild cabbage and sorghum. It is also necessary to condense the areas planted in silage crops and extensively take advantage of the possibilities of repeated plantings. It will be necessary to significantly improve natural feed lands as well. More than 30 percent of all the feeds should be obtained from them.

A solution to the food problem depends largely on correct and efficient distribution of all of our efforts and on efficient application of scientific developments and recommendations. This is why workers of the Bashkir Scientific Research Institute of Agriculture are devoting so much attention to the development of the zonal system of farming which even today is laying the paths to the achievement of large and stable harvests.

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## TILLING AND CROPPING TECHNOLOGY

### CROP STRAIN ASSORTMENT TO BE IMPROVED

Alma-Ata KAZAKHSTANSKAYA PRAVDA in Russian 16 Apr 82 p 2

[Article by N. Plotnikov, chief inspector of the State Commission for Strain Testing for the Kazakh SSR under the USSR Ministry of Agriculture: "Unharvested Crops"]

[Text] At the recent 5th Plenum of the Central Committee of the Communist Party of Kazakhstan the struggle for more grain was named as one of the major tasks for the republic's agricultural workers. By the end of the five-year plan Kazakhstan should increase the volume of grain procurements to more than 1 billion poods. Even this year it will be necessary to harvest no less than 28-29 million tons of it.

At the 15th Congress of the Communist Party of Kazakhstan D. A. Kunayev, a member of the Politburo of the Central Committee and first secretary of the Central Committee of the Communist Party of Kazakhstan, said: "We must proceed in our activity from the specific instructions of Comrade L. I. Brezhnev: to make a yield of 20 quintals of grain per hectare the norm for Kazakhstan. Each farm, rayon and oblast without exception must struggle for this. Kazakhstan must provide the country with a large amount of grain each year."

This is the general line for farmers of the republic for the entire five-year plan. In order to fulfill the task that was set it is necessary to utilize more fully the reserves that exist for further increasing the productivity of the fields.

It is known that increasing the yields of agricultural crops is now unthinkable without extensive introduction of the latest achievements of agronomical science. Yet individual farms, brigades and divisions are still not fully utilizing the agro-technical measures that have been proved to be effective in production.

One of the most important factors in increasing the productivity of agricultural crops is planting regionalized strains of seeds. It has long been inadmissible to plant simply wheat, barley or oats. At the present time farmers are greatly indebted to selection scientists for their achievements. Through their creative labor they have created many highly productive strains and hybrids of various agricultural crops for various zones of the country.

A number of highly productive strains of grain crops with good technological qualities have been regionalized in Kazakhstan in recent years. For example, the Krasnovodopadskaya-210 winter wheat, the Karagandinskaya-2, Tselinnaya-21 and Omskaya-9

spring wheat, the Donetsk-8 and Tselinny-5 barley, and the Saratovskaya-2 and Saratovskaya-3 millet, which in a relatively short period of time have been planted on significant areas of virgin land.

The areas planted in Krasnovodopadskaya-210, which was regionalized in 1976, amount to hundreds of thousands of hectares or 58 percent of the overall area planted in winter wheat. Omskaya-9 spring wheat, which was regionalized in 1980, also occupies hundreds of thousands of hectares. The largest areas of it are in Severo-Kazakhstanskaya and Kokchetavskaya oblasts. In 1981 Tselinnaya-21 spring wheat occupied 13 percent of the overall area planted in this crop in Tselinogradskaya Oblast.

In Kustanayskaya Oblast alone Donetsk-8 spring wheat, which was regionalized in 1979, occupies 91 percent of the overall area planted in this crop. In the republic as a whole there are about 100,000 hectares planted in it.

For 1983 the new strain of spring wheat, Orenburgskaya-2, has been regionalized for Karagandinskaya and Vostochno-Kazakhstanskaya oblasts; Dneprovskiy-435 spring barley for Alma-Atinskaya Oblast; and two strains of soybeans--Aurora for Vostochno-Kazakhstanskaya Oblast and Bukuriya for Taldy-Kurganskaya Oblast. In the next two or three years the aforementioned strains should occupy most of the area in the zones for which they were regionalized.

As a rule, they significantly surpass previously regionalized strains in terms of productivity. Therefore their rapid introduction will make it possible to increase the gross yields of grain without additional expenditures or expansion of the planted areas. This is demonstrated by numerous examples. Thus in the arid year of 1981 on the Valikhanovskiy Sovkhoz in Ruzayevskiy Rayon in Kokchetavskaya Oblast, Omskaya-9 spring wheat planted on an area of 4,325 hectares produced 17.4 quintals per hectare while Saratovskaya-29 produced only 12.2 quintals.

On the Mamlyutskiy breeding farm in Severo-Kazakhstanskaya Oblast Omskaya-9 planted on an area of 2,101 hectares produced a yield of 17.6 quintals per hectare while Saratovskaya-29 produced only 14.8 quintals per hectare. In Mamlyutskiy Rayon as a whole the yield of Omskaya-9 amounted to 18 quintals per hectare or 7.7 quintals more than than of Sratovskaya-29. If the Omskaya-9 strain is planted on 30 percent of the overall area planted in winter wheat in these oblasts and the conventional additional yield amounts to 1.5-2 quintals per hectare they will obtain an additional 18,000 tons of grain. Last year on the Prirechenskiy Sovkhoz the Omskiy-13709 strain of barley produced 14 quintals of grain while the new Tselinny-5 strain had a productivity of 21 quintals per hectare. Here too one can see the advantage of the new strain.

The cited examples of the potential capabilities of the new strains as compared to previously regionalized ones show the extent of the unutilized possibilities the farmers have. The selection of regionalized strains and hybrids that are best for a particular zone is one of the major factors in further increasing the productivity and the gross yields of grain and other farm products.



Still there are quite a few examples of farms that plant not only old strains but ones that are not regionalized at all. Thus there are nine strains of winter wheat that are regionalized in the republic while 15 strains are planted. Moreover, in Chimgentskaya Oblast alone there are four of these strains which occupy more than 12 percent of the planted area. Three unregionalized strains are being cultivated in Semipalatinskaya Oblast. The area planted in unregionalized strains of winter rye in the republic amounts to 24 percent. Most of this area is in Semipalatinskaya, Vostochno-Kazakhstanskaya and Kustanayskaya oblasts.

The situation with spring wheat is even worse. Instead of the 28 regionalized strains, 52 strains are being used in production. Thus five strains have been regionalized for Kustanayskaya Oblast while 18 are being planted; in Kokchetavskaya Oblast instead of the six that have been regionalized 14 are being cultivated; in Severo-Kazakhstanskaya six have been regionalized and 15 are being planted; and in Vostochno-Kazakhstanskaya Oblast 18 strains are being cultivated. In the republic as a whole in 1981 seeds of unregionalized strains were used for planting 137,000 hectares of spring wheat, 640,000 hectares of barley, 72,000 hectares of oats, and 54,000 hectares of winter wheat. If one were to assume that each hectare planted in new regionalized strains would produce an additional yield of one quintal, last year the farms failed to harvest 128,000 tons of grain. Every sovkhov and kolkhov specialist should think seriously about these facts.

The selection of the best regionalized strains of grain and other crops and good preparation of the seed material constitute an important reserve for increasing productivity. Agricultural agencies should constantly supervise the activity of seed growing farms, in all ways reduce the time periods for the propagation of new, highly productive strains, extensively disseminate the experience of advanced workers, and reach a point where every farm has high-quality seeds of regionalized strains and hybrids.

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## TILLING AND CROPPING TECHNOLOGY

### NEW STRAINS OF GRAIN CROPS DESCRIBED

Alma-Ata KAZAKHSTANSKAYA PRAVDA in Russian 21 Apr 82 p 1

[Article by F. Skobychkin, director of the state oblast agricultural experimental station (Ural'skaya Oblast): "New Strains of Grain Crops"]

[Text] Field work is full swing on the fields of the Ural area. Scientists of the oblast agricultural experimental station also have many concerns now. In conjunction with the grain growers they are solving a common problem--further increasing the productivity of agricultural crops. One of the ways of increasing the grain yields is to introduce modern strains.

At the present time the experimental station's collective is growing seeds for 16 crops and 21 strains. In recent years with its direct participation, 6 new strains of grain crops have been regionalized in the oblast. Odesskiy-36 barley has been replaced by the more productive Donetskiiy-8. The replacement of the Saratovskaya-210 spring wheat with Saratovskaya-42 is being completed this year. The new Ural'skaya Yubileynaya strain of wheat, Saratovskaya-4 rye and others have also come on the scene. As a rule, all of them have better quality of grain and are 2-3 quintals per hectare more productive than previously planted strains.

The station has reached a point where elite seeds are released for productive within one or two years. Additionally, the most serious attention is being devoted to obtaining seed material. On the threshold of this year's planting more than 3,000 hectares of seeds have been thermally decontaminated of loose smut. There is now a full guarantee that the seeds harvested in the autumn will be completely healthy.

Under the Eleventh Five-Year Plan the station will annually raise 35,000 quintals of elite and first reproduction seeds of grain crops for the sovkhoses and kolkhoses as well as 1,020 quintals of seeds of annual and perennial grasses. We are now accelerating the propagation of Donetskiiy-8 barley. Its yield is 5 quintals greater than that of the previously regionalized strain. It was first planted in 1980. Then it was only planted on 15 hectares; in the second year--580 hectares; and this year--1,840 hectares. We can now fully satisfy the farms' needs for seeds of Donetskiiy-8 barley. Thus the changeover to the planting of the new strain will have been carried out in two years.

We are preparing for mass introduction into production of the stronger strain of millet called Saratovskoye-3. Since its first harvest we have delivered 670

quintals of seeds to the kolkhozes and sovkhoses. This year the station filled the orders for Ural'skoye-109 millet which we have introduced. The new strains make it possible for the farmers to obtain an additional yield in the range of 2-3 quintals per hectare.

The station's collective has made a commitment to obtain 15 quintals of grain per hectare more this year and to prepare and sell the kolkhozes and sovkhoses no less than 50,000 quintals of elite and first reproduction seeds of modern strains of grain crops as well as to help the farms to fully change over to the planting of good strains.

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